

The background is a grayscale aerial photograph of a city, likely Atlanta, showing a dense grid of buildings and streets. Overlaid on this are various geometric elements: a large, semi-transparent circular graphic on the left side, a grid of small circles along the top and left edges, and a series of squares arranged in a vertical column on the left. The text is positioned in the lower right quadrant of the image.

Proceedings of the 37th Annual
Conference of the Environmental
Design Research Association

Editor: Meldrena K. Chapin

edra37
Beyond Conflict

May 3-7, 2006 • Atlanta, Georgia

Editors

Meldrena K. Chapin, Chief Editor; Andrew N. Greenberg, Assistant Editor

EDRA37 Conference Program Committee

Co-Chairs: Meldrena K. Chapin & Andrew N. Greenberg, *Committee Members:* Jean Wolf, Lauren Leary, April Allen, Naz Kaya, Mary Anne Alabanza-Akers, Craig Zimring, Julia Nevarez, Maria Montero, Mine Hashas, Renée Hallman, Bonnie Heath (Photography)

EDRA37 Conference Sponsors

Gold Sponsors: College of Architecture, Georgia Institute of Technology; Center for Conservation and Behavior, School of Psychology, Georgia Institute of Technology; Goodworks International, LLC; The Andrew Young School of Policy Studies, Georgia State University; The Andrew Young Center for International Affairs, Morehouse College
Silver Sponsors: GeoStats, LP Atlanta, Georgia; Active Living Research (ALR), a National Program of the Robert Wood Johnson Foundation; Perkins+Will, Atlanta Georgia

EDRA 2006 Board of Directors

Julia Nevarez, Chair; Keith Diaz Moore, Vice Chair; Susan Rowley-Balas, Secretary/Student Rep; Daniel Mittleman, Treasurer; Sally Augustin; Mary Anne Alabanza-Akers; Janetta McCoy; Brian K. Schermer; Meldrena K. Chapin, Ex-Officio Member

EDRA Placemakers

Bob Bechtel, Stephan M. Klein, Keith Diaz Moore, Robert Riley

EDRA Wayfinders

Paul B. Harris, Lyn Geboy, Randy Hester, Susan Rodiek, Daniel Mittleman, Janice Bissell, Catharine Ward Thompson, David Saile

Graphic Design and Document Layout

Renée Hallman, be-design, Atlanta, GA

Cover Design and Section Art

Larry McFall, Gallis and Associates, Charlotte, NC and Renée Hallman, be-design, Atlanta, GA

Special Thanks to the EDRA Business Office Executive Director, Janet Singer and Assistant Extraordinaire, Julie Mathis, for their continued, extensive, and enthusiastic support of EDRA as an organization, EDRA’s annual conference and the creation of these proceedings. Our appreciation also goes out to Ellen Keable, former EDRA president for her advice & support.

www.edra.org

Copyright © 2006 The Environmental Design Research Association (EDRA)

PO Box 7146, Edmond, Oklahoma 73083-7146

All rights reserved. No part of this book covered by copyright herin may be reproduced or transmitted in any form or by any means – graphic, photocopying, recording, taping, electronic or information storage and retrieval systems – without written permission of the publisher.

ISBN 0-939922-32-0

TABLE OF CONTENTS

1	EDRA37: Beyond Conflict
3	Conference Overview
4	<i>INVITED PAPERS AND PRESENTATIONS</i>
5	<i>Beyond Conflict: Reconciling Health and the Environment</i>
6	<i>Deadly Waiting Game: Why some communities must wait for health & environmental protection</i> Bullard, Robert D.
12	<i>EDRA/Places Awards Revisted</i>
12	<i>Incremental Urbanisim: The auto & the pedestrian reconsidered in strip redevelopments</i> Gamble, Michael, and LeBlanc, W. Jude
13	<i>A Case for Synthesis Between Research & Pedagogy: Incremental Urbanism</i> Gamble, Michael, and LeBlanc, W. Jude
15	<i>A Case Study Examining the Applicability of Using Health Impact Assesment to Evaaluate the Redevelopment of Buford Highway</i> Rutt, Candace
16	<i>Beyond Conflict: Participatory Design with the Homeless – A new design for Peachtree-Pine</i>
18	<i>Beyond Conflict: A Historic Story of Urban Planning in Atlanta</i>
18	<i>The History of Freedom Parkway: Transporation planning, traffic engineering and public involvement perspectives</i> Wolf, Jean
20	<i>REFEREED FULL-PAPERS</i>
21	<i>Sedentary and Fleeting Activities and their Spatial Correlates in Offices</i> Mahbub Rashid, PhD, AIA, David Craig, PhD , Craig Zimring, PhD
30	<i>Stress and Studios: A post-occupancy evaluation of studio spaces in the College of Environmental Design and Planning</i> Sophia Meger, 2006 EDRA37 Student Award Winner
41	<i>Children’s Notions of Environmental Care: The case of a low-income Muslim neighborhood in India.</i> Sudeshna Chatterjee 2006, EDRA37 Student Award Winner
55	<i>Social Change and Residential Environment: Change of Ondol (Korean heated floor) and domestic life in Korea during the 20th century</i> Jung-hye Shin
65	<i>Density, Fear, and Terrorism: How 9/11 has affected people’s desire to live in an urban area in Franklin County, Ohio</i> Vincent Mantero
79	<i>Public Perception of Productive Land Uses: Franklin County, Ohio</i> Charles Cartwright, Lisa Cutshaw, and Tristan McMannis with Jane Amidon
99	<i>A Collaborative Approach to Sustainable Land Use Planning in McHenry County, Illinois</i> Donovan Finn
107	<i>Low-cost Measures of Environmental Renewal through Direct Technological Transfer</i> Stefan Pollak
113	<i>Fitting the Old with the New: A new approach to contextual fit</i> Natheer Abu-Obeid

121	<i>THEMATIC ABSTRACTS</i>
122	<i>Active Living</i>
126	<i>Children and Youth Environments</i>
131	Day Care/Preschools
133	Schools and Classrooms
137	Public Space/Urban Space and Youth
140	<i>Cities and Small Towns</i>
140	Cities/Suburbia/Exurbia
147	Small Towns and Neighborhoods
153	<i>Conflict</i>
153	Urban Conflict
155	Conflict Resolution
160	Disaster
164	Memorials
166	Homelessness and the Built Environment
167	Crime and the Built Environment
172	<i>Culture and Environment</i>
182	<i>Digital Environments and Technology</i>
191	<i>Environment-Behavior/Education</i>
192	Studios
195	Curriculum
199	University Environments
203	Research Methods
205	<i>Environmental Gerontology</i>
214	Dementia/Dementia Special Care Units
220	Long-term Care
226	<i>Environmental Psychology</i>
228	Cognition
231	Environmental Zoology
232	Movement and Wayfinding
235	<i>Health Environments</i>
244	<i>Housing</i>
260	<i>Nature and Ecology</i>

264	<i>Participatory Design</i>
272	<i>Post-Occupancy Evaluation/Programming</i>
279	Universal and Accessible Design
283	International Building Performance Evaluation
288	<i>Urban Planning</i>
293	Sustainability/Land Use
306	<i>Workplace Environments</i>
316	<i>ERRATA</i>
317	<i>Computer Game Playing and Spatial Knowledge</i> Cubukcu, Ebru
317	<i>Diversity of Settlement in a Settlement: A way forward in cities of the developing world – case of Nairobi</i> Ochieng Crispino
318	<i>INDEX</i>
319	Author Index
324	Title Index
332	Keyword Index



May 3, 2006

Dear Colleagues,

Welcome to EDRA37 Atlanta: Beyond Conflict.

On behalf of the EDRA Board of Directors, please allow me to extend a warm welcome to what will possibly be one of EDRA's most social and politically engaging conferences, organized around conflicts and conflict resolution. Rather than a blind and desperate attempt to end conflicts, this conference offers a reflective and critically engaged approach to acknowledging and addressing the possibilities arising from conflict. Our intent is to address conflict and other issues of concern for both EDRA's membership and the public at large in order to help mold and affect policy and to make improvements in our built environment through design, research and collaboration.

Contemporary times are besieged by conflicts, and this inspires the search for peaceful, beneficial resolutions to those conflicts. Engagement with the world around us to affect change for social justice and create improvements in our built environment based upon environment-behavior research has been a core value for EDRA from its inception. Today this concern continues to be a priority, not only for EDRA, but for the world. In such trying times of terrorism, political spectacle and uncertain social, political and economic development, the relationship between people and their environments is of outmost importance. EDRA recognizes that we are committed to improving our world, and we seek to find answers to these critical issues and situations not only as committed scholars, but also as professionals, community dwellers, and individual human beings. Let us use EDRA37 as an opportunity to articulate how environment-behavior research, research-informed design, and interdisciplinary collaboration can contribute to creating just, interesting, healthy and engaging environments for us all.

Sincerely,

Julia Nevarez, Chair EDRA Board of Directors

edra37 Beyond Conflict

BEYOND CONFLICT

Atlanta historians like to joke that the city has no history, that Sherman burned the city's history along with its buildings. Yet it was that very destruction – and the rebuilding that followed – that propelled Atlanta into its current prominence. In fact, right after the Civil War, city fathers themselves destroyed some of the few remaining antebellum mansions in order to make room for new city and state government buildings. Within a generation, the city had grown far bigger than it had been before the war.

BEYOND CONFLICT: THE NEXT STAGE

So often this is the case with conflict, tearing down the old to build something new in its place. It is easy to see to see conflict as inherently evil, or to see it overwhelming all other aspects of life. Violent conflicts, especially the headline-grabbing clashes of race, religion and nation, take with them lives, property, and sometimes even entire cultures and ways of life.

Even less physically destructive conflicts take their tolls on our psyches, our relationships and our spirits. The less obvious conflicts of space, technology and infrastructure tax us in many ways. Yet out of conflict the phoenix rises, reborn from the flames of its own destruction.

In Hegelian terms, progress comes from conflict (Hegel, 1812). The clash of thesis and antithesis creates a greater synthesis, reconciling the truths of conflicting forces. We bemoan the effects and tragedies that accompany conflict and strive to turn them into something better. John Dewey (1976: 207) wrote that “conflict is the gadfly of thought,” and EDRA37 highlights the many ways conflict stimulates new ways of seeing and creating our built environment. Conflicts emerge in many ways and take many forms, but they often result in new designs.

Atlanta's own conflicts highlight this growth. Burned by Sherman in the U.S. Civil War, Atlanta's rebuilding took a number of different directions – planned and unplanned. Often criticized for doing so little to maintain its history, Atlanta has constantly built new structures on top of the remains of its old ones. However, small gems from its past still remain to remind residents and visitors alike of the conflicts that shaped the city.

Perhaps Atlanta's most significant conflict since the Civil War was that over civil rights. Home of Dr. Martin Luther King Jr. and other movement leaders, Atlanta still feels the influence of those modern giants, and the structures that shaped the movement still play a role in the city. Other conflicts, both historic and on going, continue to shape Atlanta. Some of these have included broad issues like white flight and its current opposite, the gentrification of in-town neighborhoods; competing needs of growth and preservation; and attempts to revitalize urban areas. Other conflicts have been as restricted as disputes over neighborhood aesthetics, appropriate use of specific parks, and even decisions about naming public facilities. Even in Atlanta, the self-proclaimed “City too busy too hate,” these conflicts continue.

However, these conflicts do not exist just in Atlanta. The conflicts that continue to mark this city find their counterparts in communities across the globe. It's often said that if you want to know what problems will afflict your city in a few years, you should come to Atlanta now. These conflicts reach far beyond those that shape our physical environments. They shape our mental and spiritual environments as well, and enter into the places where all three environments meet.

Still, not every conflict must be fought to the bitter end, or until one of the combatants is vanquished. As Paul Rand, the designer known for corporate logos like IBM's and Enron's, wrote, “The conflict between design and technology, like the conflict between form and content, is not an either/or problem, it is one of

*EDRA37:
BEYOND
CONFLICT*

synthesis” (Rand 1996: 41). And, of course, all these conflicts create incomparable inspiration for research.

Just as important as finding good resolutions to our conflicts is finding new ways to avoid the damaging affects that stem from the conflicts themselves. Many of the battles that mark so much of our lives are completely avoidable, bringing with them high levels of stress and aggravation for little reward. Moving beyond conflict is more than just finding a synthesis; it is finding a whole new way to deal with opposition.

This desire to find a new way has led to such paths as conflict mediation, conflict resolution, consensus decision making and more. Businesses find such approaches more profitable than traditional mechanisms. Couples use these techniques to avoid the pitfalls that end so many relationships.

An ancient fable involves two trees facing a powerful wind. The oak faces the wind head on, challenging it to do its worst, and snaps against the roaring gale. The willow, on the other hand, bends and avoids confronting the wind head on. It survives the storm by finding a way past the conflict.

Moving beyond conflict in this manner does not demonstrate weakness. In fact, the opposite is often true. Martin Luther King proved the truth of this again and again, showing far greater bravery than did his attackers when he refused to raise fists to confront violence and hate. The nonviolent tactics of the Civil Rights movement led to its greatest successes, something that has proven true of resistance movements around the world. Those that made the greatest use of nonviolence, from India to South Africa to Eastern Europe, have succeeded where those built on bloody confrontation often fail.

In some cases, people have found the strength for nonviolence in the very rightness of their causes. In other cases, it is this very righteousness that leads to violence and bloodshed. One of the hardest tasks for conflict mediators is finding ways for people to move beyond a fixation on right and wrong and to instead view each other as real people, with real motivations that deserve respect and understanding. When people make this leap, however, they can find amazing ways to move beyond the original conflict.

At its worst, conflict destroys those things we treasure. Even then, however, it creates the stimulus for the creation of new treasures, be they physical or intellectual. At its best, conflict allows those who once opposed each other to find common ground and move far beyond where they were when the conflict began. The great Afghani poet Rumi, himself no stranger to conflict, put this desire in its most simple and beautiful form:

“*Out beyond the ideas of wrong doing and right doing, there is a field – I’ll meet you there.*”

— (Barks, 1997: 36).

Meldrena Chapin and Andrew Greenberg
Conference Co-Chairs

REFERENCES

Hegel, G. W. F. (1812, 1813, 1816). *The Science of Logic*.

Dewey, J. (1976). “Morals Are Human” in Ed. J. A. Boydston, *The Middle Works*, 1899–1924, 14 Carbondale: Southern Illinois University Press.

Rand, P. (1996). *From Lascaux to Brooklyn*. New Haven : Yale University Press.

Barks, C. (1997) *The Essential Rumi*. San Francisco: Harper. Used with permission.

CONFERENCE OVERVIEW

EDRA attracts us for a variety of reasons. For many, it is the chance to share knowledge with peers from around the world. For others, it is the association’s interdisciplinary nature and synergistic approach, which brings a wide array of viewpoints to bear on issues. And for more than a few of us, it is the chance to catch up with old friends and colleagues.

When we took on the task of organizing EDRA37, one of our primary goals was to bring EDRA to the attention of people and groups that normally do not attend our conference. We believe EDRA has tremendous amount to offer many people beyond its usual attendees. To catch their attention, we emphasized EDRA’s great strengths, including its interdisciplinary nature, its collegiality, and its research focus on how people relate to their environments. To that we added a theme that had wide appeal, social and networking opportunities that would attract as diverse a crowd as possible. We invited speakers who not only drew from EDRA’s rich tradition but who also came from completely outside our ranks. Of course, in the end, the main reason people attend EDRA’s annual conference is the stellar array of research presented both by members and newcomers alike.

The conference theme attracted more submissions than we expected. We especially welcome the way so many of our submitters went beyond the theme itself to offer innovative ways to look at conflict, its causes & its effects. These demonstrated the rich depth EDRA offers. Conference highlights include:

- A keynote address on the conference theme by civil rights leader and former UN Ambassador Andrew Young. During his time as mayor of Atlanta, Ambassador Young is credited with making Atlanta a truly international city. His work for a better world continues today through Goodworks International, which creates designs that foster international growth and long-term economic development in Africa and the Caribbean. An opening-night reception followed Ambassador Young’s speech.

- Pre-conference intensives on innovative workplaces, sustainable campuses, Atlanta’s new BeltLine system, and more, including a look at the use of labyrinths as environmental space for healing, resolution and renewal.

- “Beyond Conflict: Redesigning the Urban Environment,” our first plenary session. Charles Brewer, founder of Mindspring and an eco-friendly developer; Georgia Tech’s Dr. Ellen Dunham-Jones, board member of the Congress for the New Urbanism; and Vicki Lundy Wilbon, COO of the Integral Group an organization dedicated to urban revitalization projects around the US, offered new ways of looking at design of the urban environment.
- “Beyond Conflict: Reconciling Health and the Environment,” our second plenary session. Dr. Rob Bullard, director of Clark Atlanta University’s Environmental Justice Resource Center and author of such books as *Dumping in Dixie: Race, Class and Environmental Quality*, joined Jim Durrett, executive director of the Livable Communities Coalition, and Dr. Howard Frumkin, director of the CDC’s National Center for Environmental Health/Agency for Toxic Substances and Disease Registry for this thought-provoking session.

- A week of sessions on subjects as diverse as zoo design and hospital construction, in addition to sessions pertaining to the wide variety of topics discussed by EDRA’s networks, and even more. This promises to be an exciting conference full of new and innovative presentations surrounding environment-behavior research and research-informed design. We hope that EDRA37 allows all of us the opportunity to learn from each another and gives us a welcoming platform for discussing meaningful collaborative resolutions to the numerous conflicts that affect us all. We look forward to seeing you next year in Sacramento.



Invited Papers & Presentations

EDRA37 and its theme, Beyond Conflict, drew an excellent mix of submissions from across the globe. We were fortunate to attract a number of notable presenters for our plenaries and other invited sessions focused on the conference theme. These presenters provided us valuable insights not only into Atlanta's conflicts, but those of the United States and, indeed, the entire world. From issues as large as the way our environments affect our health, to efforts Atlanta's homeless are making to redesign key parts of downtown, and even to struggles around creating and redesigning one of the city's notorious highways, our invited presenters offered us successes, failures, and encouragement in our efforts to move beyond conflict.

BEYOND CONFLICT: RECONCILING HEALTH AND THE ENVIRONMENT

Presenters: Bullard, Robert D., Ware Distinguished Professor of Sociology, Environmental Justice Resource Center, Clark Atlanta University; Durrett, Jim, Executive Director, The Livable Communities Coalition; and Frumkin, Howard, Director of the National Center for Environmental Health/Agency for Toxic Substances and Disease Registry, U.S. Centers for Disease Control and Prevention. [Invited Plenary]

From homes and offices that make us sick, to workplaces that make us sedentary, to hospitals that don't make us better, little impacts our personal health as much as our environment. Environment and health don't have to be at odds, however. According to Howard Frumkin, health and environment do not need to be in conflict; in fact, they are mutually supporting, and good design – research informed, socially conscious design, the kind of design discussed at EDRA meetings – can help

reconcile the two. However, conflicts frequently arise in efforts to achieve healthy environments. Frumkin poses four such conflicts:

- Conflicts between a worthy environmental goal and another worthy environmental goal, e.g. disagreements over the construction of multi-use trails along urban waterways;
- Conflicts between evidence-based approaches and ideology, e.g. design principles recommended without an evidence base;
- Conflicts between healthy development for people of means and healthy development for poor people: the importance of addressing health disparities; and
- Conflicts between economic development and health, e.g. highway construction, large house construction.

Jim Durrett proposes that we work towards resolving these conflicts and others through developing liveable communities. Liveable communities can be developed through managed growth focused on the following approaches:

- Supporting greater densities and mixed-use developments in appropriate areas, especially in our regional centers and transportation corridors;
- Increasing housing choices by removing barriers that artificially restrict the market, including financial barriers, and by encouraging developers to provide quality, innovative projects utilizing good designs consistent with community desires;
- Integrating transportation investments and infrastructure improvements with appropriate land use; and
- Guiding how greenfield land is developed, promoting more land-efficient development, water conservation, open-space preservation and infrastructure optimization.

Robert Bullard challenges us to approach our work in creating cities, town, and liveable communities of all sizes with the unique conflicts of race, class, and environmental injustice in mind in an effort to build quality, healthy places for all.

INVITED
PAPERS &
PRESENTATIONS

**DEADLY WAITING GAME: WHY
SOME COMMUNITIES MUST WAIT
FOR HEALTH & ENVIRONMENTAL
PROTECTION**

*Bullard, Robert D., Ph.D. Ware Distinguished Pro-
fessor of Sociology, Director of the Environmental
Justice Resource Center, Clark Atlanta University,
Atlanta, Georgia
{Invited Preliminary Paper}*

The environmental justice paradigm provides a useful framework for examining and explaining the spatial relation between the health of marginalized populations and their built and natural environment.¹ Historically, African American and other people of color communities have borne a disproportionate burden of pollution from incinerators, smelters, sewage treatment plants, chemical industries, and a host of other polluting facilities. Environmental racism has rendered millions of Americans “invisible” to government regulations and equal enforcement.

Environmental “Sacrifice Zones”

Numerous studies show people of color concentrated in nonattainment areas that failed to meet EPA ground level ozone standards – pollution mainly from cars, trucks, and buses. In 1992, National Argonne Laboratory researchers discovered that 57 percent of whites, 65 percent of African Americans, and 80 percent of Latinos lived in the 437 counties that failed to meet at least one of the EPA ambient air quality standards.²

A 2000 study from the American Lung Association found children of color to be disproportionately represented in areas with high ozone levels.³ Additionally, 61.3 percent of Black children, 69.2 percent of Hispanic children and 67.7 percent of Asian-American children live in areas that exceed the 0.08 ppm ozone standard, while only 50.8 percent of white children live in such areas.

Bad air hurts. Although African Americans represent 12.7 percent of the U.S. population, they account

for 26 percent of asthma deaths.⁴ African American children are five times more likely to die from asthma than white children.⁵ The Centers for Disease Control and Prevention reports that asthma accounts for more than 10 million lost school days, 1.2 million emergency room visits, 15 million outpatient visits, and over 500,000 hospitalizations each year. Asthma cost Americans over \$14.5 billion in 2000.⁶

Dirty industries have followed the “path of least resistance” allowing many black communities to become environmental “sacrifice zones.”⁷ African Americans are 79 percent more likely than whites to live in neighborhoods where industrial pollution is suspected of posing the greatest health danger.⁸ Using EPA’s own data and government scientists, the Associate Press discovered that in 19 states, blacks were more than twice as likely as whites to live in neighborhoods where air pollution seems to pose the greatest health danger.

The Associated Press analyzed the health risk posed by industrial air pollution using toxic chemical air releases reported by factories to calculate a health risk score for each square kilometer of the United States. The scores can be used to compare risks from long-term exposure to factory pollution from one area to another. The scores are based on the amount of toxic pollution released by each factory, the path the pollution takes as it spreads through the air, the level of danger to humans posed by each different chemical released, and the number of males and females of different ages who live in the exposure paths.

Nationally, three out of five African Americans and Latino Americans live in communities with abandoned toxic waste sites.⁹ Over 870,000 of the 1.9 million (46 percent) housing units for the poor, mostly black and Hispanic, sit within about a mile of factories that reported toxic emissions to the Environmental Protection Agency.¹⁰ More than 600,000 students in Massachusetts, New York, New Jersey, Michigan and California were attending nearly 1,200 public schools, with largely African Americans and other children of color, that are located within a half mile of federal Superfund or state-identified contaminated sites.¹¹

More than 68 percent of Blacks live within 30 miles of a coal-fired power plant – the distance within which the maximum effects of the smokestack plume

are expected to occur – compared with 56 percent of white Americans.¹² Government scientists and contractors have spent millions of dollars creating health risk measures. On February 11, 1994, environmental justice reached the White House when President William J. Clinton signed Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The Order mandated federal agencies to incorporate environmental justice into all of their works and programs.¹³

In a 2003 report, Not in My Backyard: Executive Order 12,898 and Title VI as Tools for Achieving Environmental Justice, the U.S. Commission on Civil Rights concluded that “Minority and low-income communities are most often exposed to multiple pollutants and from multiple sources...There is no presumption of adverse health risk from multiple exposures, and no policy on cumulative risk assessment that considers the roles of social, economic, and behavioral factors when assessing risk.”¹⁴

A March 2004 EPA Office of Inspector General report, EPA Needs to Consistently Implement the Intent of the Executive Order on Environmental Justice, sums up the treatment of environmental justice under the Bush administration. After a decade, EPA “has not developed a clear vision or a comprehensive strategic plan, and has not established values, goals, expectations, and performance measurements” for integrating environmental justice into its day-to-day operations.¹⁵

Hazardous Homes

Race maps closely with the geography of environmental risks. A case in point is childhood lead poisoning which continues to be the number one environmental health threat to children of color in the United States, especially poor children and children living in inner cities.¹⁶ Removing lead from gasoline is hailed as a national environmental and health victory. However, allowing lead-paint in older housing to poison children is a national disgrace.

Black children are five times more likely than white children to have lead poisoning.¹⁷ One in seven black children living in older housing has elevated blood lead levels.¹⁸ About 22 percent of African American children

and 13 percent of Mexican American children living in pre-1946 housing are lead poisoned, compared with 6 percent of white children living in comparable types of housing. Over 28.4 percent of all low-income African American children are lead poisoned compared to 9.8 percent of low-income white children.

Recent studies supported by the National Institute for Environmental Health Sciences suggest that a young person’s lead burden is linked to lower IQ, lower high school graduation rates and increased delinquency.¹⁹ Lead poisoning causes about 2 to 3 points of IQ lost for each 10 ug/dl lead level.²⁰

Supermarket Redlining and Health

Studies over the past three decades clearly document the relationship between redlining and disinvestment decisions and neighborhood decline.²¹ Redlining accelerates the flight of full-service banks, food stores, restaurants, and other shopping centers from inner-city neighborhoods. In their place, inner-city neighborhoods are left with check-cashing stations, pawn shops, storefront grocery stores, liquor stores, and fast-food operations – all well buttoned up with wire mesh and bullet-proof glass.

Redlining is not limited to insurance companies, banks, and lending institutions. Retail redlining also denies millions of African Americans basic goods and service that most people take for granted. African Americans who are often segregated in black neighborhoods have difficulty accessing something as basic as a full-service supermarket. Food security remains a severe problem in low-income and middle-income black neighborhoods. Studies show that wealthier neighborhoods have more than three times as many supermarkets as poor neighborhoods.²²

Not having a supermarket nearby severely limits African Americans access to the basic elements of a healthy diet and thereby placing them at greater risk of chronic diseases such as diabetes and congestive heart failure. When broken down by race, not just wealth, predominately white neighborhoods in Maryland, Minnesota, Mississippi, and North Carolina have four times as many supermarkets as predominately black neighborhoods.²³ Supermarkets are more

likely to offer a wide selection of food at affordable prices. More important, medical research shows that eating lots of fruits and vegetables can lower blood pressure, reduce the risk of heart disease and stroke and help prevent bone loss.

In many black neighborhoods it is far easier to get an artery-clogging bucket of fried chicken or a slice of pizza than it is to get a fresh apple or bundle of fresh grapes. The more supermarkets a neighborhood has, the more fruits and vegetables its residents eat. For example, the presence of at least one supermarket in a black neighborhood was associated with a 25 percent increase in the number of residents who limited the amount of fat in their diets, as compared with people in neighborhoods with no supermarket.²⁴

Fast foods add to this health crisis. Fast food outlets proliferate in many low-income African American neighborhoods, crowding out access to healthier foods. Children are the special targets of saturation marketing by the junk food industry. In New York City, Los Angeles, Hartford, Knoxville and Minneapolis, low-income residents pay 10 to 40 percent more for food than higher income residents of the same cities. Urban residents are fighting back and demanding “food justice,” involving local people from seed to sale.²⁵ Food justice advocates view access to healthy food as a human right issue and that “lack of access to food in a community is an indicator of material deprivation.”²⁶

***Transportation Apartheid –
Why Some People Get Left Behind***

Transportation provides access to opportunity and serves as a key component in addressing poverty, unemployment, and equal opportunity goals while ensuring access to education, health care, and other public services.²⁷ This past December, the nation celebrated the 50th anniversary of the Montgomery Bus Boycott. It has been more than 110 years since the U.S. Supreme Court codified “separate but equal” in it Plessy v. Ferguson ruling and made “Jim Crow” the law of the land. However, transportation is still separate and unequal.²⁸

Transportation is a major component in any emergency preparedness and evacuation plan. Unequal access to transportation alternatives in natural

disasters heightens the vulnerability of the poor, elderly, disabled, and people of color. Individuals with private automobiles have a greater chance of “voting with their feet” and escaping from hurricanes than individuals who are dependent on the government to provide emergency transportation. Too often buses (public transit and school buses), vans (para-transit), and trains do not come to the rescue of low-income, elderly, disabled, and sick people.

American society is largely divided between those with cars and those without cars. In urban areas, African Americans and Latinos comprise over 54 percent of transit users (62 percent of bus riders, 35 percent of subway riders, and 29 percent of commuter rail riders). Nationally, only about 5.3 percent of all Americans use public transit to get to work.²⁹ African Americans are almost six times as likely as whites to use transit to get around. Urban transit is especially important to African Americans where over 88 percent live in metropolitan areas and 53.1 percent live inside central cities.

Nearly 60 percent of transit riders are served by the ten largest urban transit systems and the remaining 40 percent by the other 5,000 transit systems. In areas with populations from one million and below, more than half of all transit passengers have incomes of less than \$15,000 per year.

The private automobile is still the most dominant travel mode of every segment of the American population, including the poor and people of color. Clearly, private automobiles provide enormous employment access advantages to their owners. Car ownership is almost universal in the United States with 91.7 percent of American households owning at least one motor vehicle. According to the 2001 National Household Travel Survey (NHTS), which was released in 2003, 87.6 percent of whites, 83.1 percent of Asians and Hispanics, and 78.9 percent of blacks rely on the private car to get around.³⁰

Nationally, only 7 percent of white households own no car, compared with 24 percent of African American households, 17 percent of Latino households, and 13 percent of Asian-American households. Two in ten households in the Louisiana, Mississippi, and Alabama disaster area had no car.³¹ People in the hardest hit areas were twice as likely as most Americans to be poor

and without a car. Over one-third of New Orleans’ African Americans do not own a car. Before Katrina, nearly a quarter of New Orleans residents relied on public transportation.³² And 102,122 disabled persons lived in New Orleans at the time of the hurricane.³³

Katrina exposed a weakness in urban mass evacuation plans. The problem is not unique to New Orleans. The recent evacuation of 2.7 million people from Houston shows that “there is no way to evacuate a large U.S. city quickly and smoothly.”³⁴ Many motorists ran out of gas after spending more than fifteen hours stuck in traffic. Katrina’s evacuation plan functioned relatively well for motorists but failed the transit dependent population.³⁵

As in the case of Hurricane Katrina, emergency transportation planners failed the “most vulnerable” of our society – individuals without cars, non-drivers, disabled, homeless, sick persons, elderly, and children. As a result, many vulnerable people were left behind and may have died as a result of no transportation. Nearly two-thirds of the Katrina victims in Louisiana were older than 60. These data confirm what many believe, that Katrina killed the weakest residents.³⁶

Local, state, and federal emergency planners have known for years the risks facing transit-dependent residents.³⁷ At least “100,000 New Orleans citizens do not have means of personal transportation” to evacuate in case of a major storm.³⁸ A 2002 article titled “Planning for the Evacuation of New Orleans” details the risks faced by hundreds of thousands of carless and non-drivers in the New Orleans area. Of the 1.4 million inhabitants in the high-threat areas, it is assumed only approximately 60 percent of the population of about 850,000 people, or be able to leave the city. The reasons are numerous.³⁹

Although the various agencies had this knowledge of a large vulnerable population, there simply was no effective plan to evacuate these New Orleanians away from rising water. This problem received national attention in 1998 during Hurricane Georges when emergency evacuation plans left behind mostly residents who did not own cars.⁴⁰ The city’s emergency plan was modified to include the use of public buses to evacuate those without transportation. When Hurricane Ivan struck New Orleans in 2004, many carless

New Orleanians were left to fend for themselves, while others were evacuated to the Superdome and other “shelters of last resort.”⁴¹

A Times-Picayune reporter, Bruce Nolan, summed up the emergency transportation plan: “City, state and federal emergency officials are preparing to give the poorest of New Orleans’ poor a historically blunt message: In the event of a major hurricane, you’re on your own.”⁴² The New Orleans Rapid Transit Authority (RTA) emergency plan designated 64 buses and 10 lift vans to transport residents to shelters. This plan was woefully inadequate since the larger buses only hold about 60 people each.

Transporting an estimated 100,000 to 134,000 people out of harms way is no small undertaking. Given the size of transit-dependent population, some transportation experts estimate that at least 2000 buses would have been needed to evacuate all New Orleans residents who needed transportation.⁴³ Most of the city’s 500 transit and school buses were without drivers. About 190 RTA buses were lost to flooding. The 1,300 RTA employees are dispersed across the country and many are homeless.⁴⁴

Lack of car ownership and inadequate public transit services in New Orleans and most American cities with a high proportion of “captive” transit-dependent resident exacerbate social, economic, and racial isolation – especially for disabled, elderly, low-income, and people of color residents who already have limited transportation options. As jobs and opportunity flee to the distant suburbs, where public transit is inadequate or nonexistent, persons without cars are left behind. In the end, all Americans pay for the social isolation and concentrated poverty that ensue from poor planning.⁴⁵

Environmental Justice for All

The environmental protection apparatus is broken and needs to be fixed. The environmental justice movement has set clear goals of “fixing” this broken system, by eliminating unequal enforcement of environmental and public health laws. Environmental justice leaders have made a difference in the lives of people and the physical environment. They have assisted public decision makers in identifying “at

risk” populations, toxic “hot spots,” research gaps, and action models to correct existing imbalances and prevent future threats.

Impacted communities are not waiting for the government or industry to get their acts together. Waiting for government to respond can be as hazardous as the pollution or threat itself. People of color have formed their own environmental justice movement to hold government and industry accountable. In the end, no community, black or white, rich or poor, should be exposed to unnecessary environmental health risks. Environmental justice is a basic human right.

Robert D. Bullard directs the Environmental Justice Resource Center at Clark Atlanta University and author of *The Quest for Environmental Justice: Human Rights and the Politics of Pollution* (San Francisco: Sierra Club Books, 2005).

NOTES

¹ Robert D. Bullard, *The Quest for Environmental Justice: Human Rights and the Politics of Pollution*. San Francisco: Sierra Club Books, 2005.

² Dee R. Wernette and Leslie A. Nieves, “Breathing polluted air: Minorities are disproportionately exposed,” *EPA Journal* 18 (March/April, 1992): 16–17.

³ American Lung Association, “Fact Sheet: Children and Air Pollution,” (September 2000) found at http://www.lungusa.org/air/children_factsheet99.html. Accessed December 1, 2002.

⁴ American Lung Association. *Lung Disease Data in Culturally Diverse Communities: 2005. Lung Disease Data at a Glance: Asthma*, available at <http://www.lungusa.org>.

⁵ Environmental Defense, “Clean Air for Life: Dirty Air & Your Health. Asthma and Air Pollution,” available at <http://www.environmentaldefense.org>.

⁶ “Asthma’s At-A-Glance 1999.” http://www.cdc.gov/nceh/asthma_old/ata glance/default.htm

⁷ Robert D. Bullard, *The Quest for Environmental Justice: Human Rights and the Politics of Pollution*. San Francisco: Sierra Club Books, 2005.

⁸ David Pace, “AP: More Blacks Live with Pollution,” The Associated Press, December 13, 2005.

⁹ Commission for Racial Justice. *Toxic Wastes and Race in the United States*. New York: New York: United Church of Christ, 1987.

¹⁰ “Study: Public Housing is too Often Located Near Toxic Sites.” *The Dallas Morning News*, October 3, 2000, available at <http://www.cnn.com/2000/NATURE/10/03/toxicneighbors.ap/>

¹¹ Child Proofing Our Communities Campaign. March 2001. *Poisoned Schools: Invisible Threats, Visible Actions*. Falls Church, VA: Center for Health, Environment and Justice; See also <http://www.childproofing.org/mapindex.html>.

¹² See the *Air of Injustice* report on the Clear the Air website at <http://cta.policy.net/proactive/newsroom/release.vtml?id=23901>.

¹³ William J. Clinton, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Exec. Order No. 12898,” *Federal Register*, 59, No. 32, February 11, 1994, available at http://www.epa.gov/compliance/resources/policies/ej/exec_order_12898.pdf#search=’executive%20order%2012898’.

¹⁴ U.S. Commission on Civil Rights. *Not in My Backyard: Executive Order 12898 and Title VI as Tools for Achieving Environmental Justice*. Washington, DC: U.S. Commission on Civil Rights, 2003, p. 27.

¹⁵ U.S. EPA Office of Inspector General, *EPA Needs to Consistently Implement the Intent of the Executive Order on Environmental Justice: Evaluation Report*. Washington, DC: EPA, March 1, 2004, p. 1.

¹⁶ National Institute of Environmental Health Sciences. *Environmental Diseases from A to Z*. NIH Publication No. 96–4145. <http://www.nieehs.nih.gov>

¹⁷ Alliance for Healthy Homes. “Children at Risk, Disparities in Risk: Childhood Lead Poisoning.” www.afhh.org/chil_ar_disparities.htm.

¹⁸ Trust for America’s Health, “Browse by Topic: Health Disparities – Lead,” <http://healthyamericans.org>.

¹⁹ See U.S. Centers for Disease Control and Prevention (2000). *MMWR*, 49 (RR–14): 1–13; also National Institutes of Health (NIH), National Institute of Environmental Health Sciences (NIEHS), Health Disparities Research (www.niehs.nih.gov/oc/factsheets/disparity/home.htm).

²⁰ Peter Montague, “Pediatricians Urge a Precautionary Approach to Toxic Lead,” September 29, 2005, *Rachel’s Democracy and Health News*, #827 (September 2005), http://www.rachel.org/bulletin/bulletin.cfm?Issue_ID=2513.

²¹ G. A. Dymski & J. M. Veitch. “Taking it to the bank: Race, credit, and income in Los Angeles.” Pp. 150–179 in R.D. Bullard, J. E. Grigsby, and C. Lee. (Eds.). *Residential Apartheid: The American Legacy*. Los Angeles: UCLA Center for African Studies Publication, 1994; and G. Squires. “Forgoing a tradition of redlining for a future of reinvestment.” *Business Journal Serving Greater Milwaukee* (July 24): 1998: 50.

²² See Ronald Cotterill and Andrew Franklin. “The Urban Grocery Store Gap,” Food Marketing Policy Center, University of Connecticut, April 1995; Amanda Shaffer. “The Persistence of Los An’ Grocery Store Gap.” Urban and Environmental Policy Institute, May 31, 2002; Kimberly Morland, et al. “Access to Healthy Foods Limited in Poor Neighborhoods,” *American Journal of Preventive Health*, January, 2002.

²³ Kimberly Morland, et al. “Access to Healthy Foods Limited in Poor Neighborhoods,” *American Journal of Preventive Health*, January, 2002.

²⁴ Ibid.

²⁵ Mark Winston Griffith. “The ‘Food Justice’ Movement: Trying to Break the Food Chains,” *Gotham Gazette*, December 2003, also found at <http://www.gothamgazette.com/article/communitydevelopment/20031218/20/808>.

²⁶ Ibid.

²⁷ Mark Garrett & Brian Taylor, “Reconsidering Social Equity in Public Transit,” *Berkeley Planning J.*, Vol. 13, at 6, 10 (1999), available at <http://www.dcrp.ce.d.berkeley.edu/bpj/pdf/13-GarrettTaylor.pdf>.

²⁸ Robert D. Bullard and Glenn S. Johnson, *Just Transportation: Dismantling Race and Class Barriers to Mobility*. Gabriola Island, BC: New Society Publishers, 1997.

²⁹ Thomas W. Sanchez, Rich Stolz, and Jacinta S. Ma, *Moving to Equity: Addressing Inequitable Effects of Transportation Policies on Minorities*. Cambridge, MA: The Civil Rights Project at Harvard University, 2003.

³⁰ John Pucher and John L. Renne, “Socioeconomics of Urban Travel: Evidence from the 2001 NHTS,” *Transportation Quarterly* 57 (Summer 2003): 49–77.

³¹ The Associated Press, “Storm’s Victims Unlike Most Americans,” *MSNBC.com*, September 4, 2005, found at <http://www.msnbc.msn.com/id/9207190>.

³² Bruce Katz, Matt Fellows, and Nigel Holmes, “The State of New Orleans,” *The New York Times*, December 7, 2005.

³³ Marta Russell, “Being Disabled and Poor in New Orleans,” *ZNet Daily Commentaries*, September 25, 2005, available at <http://www.zmag.org/sustainers/content/2005-09/25russell.cfm>, (Accessed on October 2, 2005).

³⁴ Spencer S. Hsu and Dan Balz, “Ins and Outs of Emergency Evacuation,” *The Washington Post*, September 24, 2005, p. A9.

³⁵ Todd Litman, *Lesson from Katrina and Rita: What Major Disasters Can Teach Transportation Planners*. Victoria, BC: Victoria Transport Policy Institute, September 30, 2005.

³⁶ Nicholas Riccardi, “Many of Louisiana Dead Over 60,” *The Atlanta Journal-Constitution*, November 6, 2005, p. A6.

³⁷ See State of Louisiana, *Southeast Louisiana Hurricane Evacuation and Sheltering Plan*. Baton Rouge: State of Louisiana, 2000, available at www.ohsep.louisiana.gov/plans/EOPSupplementala.pdf; Mark Fischett, “Drowning New Orleans,” *Scientific American* (October 2001), available at www.sciam.com; Joel K. Bourne, Jr., “Gone with the Water,” *National Geographic*, (October 2004), available at <http://magma.nationalgeographic.com/ngm/0410/feature5/>; *City of New Orleans, City of New Orleans Comprehensive Emergency Management Plan*. City of New Orleans, 2005, available at www.cityofno.com.

³⁸ City of New Orleans, *City of New Orleans Comprehensive Emergency Management Plan*. City of New Orleans, 2005, available at www.cityofno.com.

³⁹ Brian Wolshon, “Planning for the Evacuation of New Orleans,” *Institute of Transportation Engineers Journal*, February 2002, p. 45, available at <http://www.ite.org/>.

⁴⁰ Michael Perlstein and Brian Thevenot, “Evacuation Isn’t An Option for Many N.O. Area Residents,” *The Times Picayune*, September 15, 2004, p. A1.

⁴¹ Shirley Laska, “What if Hurricane Ivan Had Not Missed New Orleans?” *National Hazards Observer* (2004).

⁴² Bruce Nolan, “In Storm, N.O. Wants No One Left Behind,” *The Times-Picayune*, July 24, 2005.

⁴³ Todd Littman, “Lessons from Katrina: What major disasters Can Teach Transportation Planners,” Victoria Transport Policy Institute, September 30, 2005.

⁴⁴ Bruce Eggler, “RTA Back on Track Slowly, Surely,” *The Times Picayune*, October 14, 2005, B1.

⁴⁵ See Robert D. Bullard, Glenn S. Johnson, and Angel O. Torres, *Highway Robbery: Transportation Racism and New Routes to Equity*. Boston: South End Press, 2004.

EDRA/PLACES AWARDS REVISITED

In 2004, Michael Gamble and Jude LeBlanc won an EDRA/Places award for their work on Buford Highway in Atlanta. We approached them for EDRA37 to update their work, as well as to discuss the work the CDC has since done in association with their work. None of our research projects exists in a vacuum, and we hope that the following three invited submissions helps demonstrate how research grows, changes and evolves over time, and how others can act on such findings.

INCREMENTAL URBANISM: THE AUTO & THE PEDESTRIAN RECONSIDERED IN STRIP REDEVELOPMENTS

Gamble, Michael, and LeBlanc, W. Jude (Georgia Institute of Technology), co-investigators, with Crooks, Ryan; Grether, Paul; Patel, Mehul; Hitch, Ted, Subrahmanyam, Muthukumar {Paper}

Our multidisciplinary team has just completed phase I of a funded research project to develop an analytical framework and design alternatives that act to allay the gap between the automobile and the pedestrian in strip developments.¹ Our chosen study area is Atlanta’s Buford Highway, the most ethnically diverse corridor in the city and home to Atlanta’s Asian and Hispanic population. The highway is unique, with its own special demographics and characteristics, yet is representative of the major urban problems of many contemporary cities: ubiquitous strip developments that are single use, low density and auto oriented.

Our research begins with an assumed link between public health and the built environment. Many recent

studies conclude that low-density auto-oriented development results in surroundings that adversely affect public health. Characteristics include poor vehicular/pedestrian circulation systems, excess surface parking, low building density and inadequate mass transit. Health is affected at the scales of the individual, the neighborhood social unit and the larger ecological system. While there is significant writing on the subject, there are few examples of exactly how to implement change. Greyfield sites are strategically chosen in order to force speculation on the relationship between architectural projects, public policy and community design. Our hypothesis is that in Greyfield redevelopments, revised relationships between interconnectivity, parking requirements, mixed use-density and public transportation are needed to produce healthier environments. In Greyfield redevelopments, master plans are of limited use due to the complexity of existing property ownership. We are exploring an urbanism of increments.

We believe that the topics listed in the preceding paragraph, relating environment to health, are required to answer the thesis question of how a pedestrian network can be realized in an environment originally conceived without one. The selection of Buford Highway as the base case area for investigation was prompted by two additional observations. First, the population around Buford Highway, like the general population of Atlanta, continues to increase. Second, Buford Highway is an area of high pedestrian fatalities.² This high fatality rate is potentially due to the fact that Buford Highway was originally designed as an automobile corridor with essentially no pedestrian infrastructure. Consider, for example, that at least 24 percent of the Buford Highway corridor inhabitants do not own a car and that within our eight-linear-mile study area there are no sidewalks.

Interaction between the automobile and the pedestrian in an urban context in relation to urban design is a subject that is attracting more and more attention. This interest is not just at the level of transportation infrastructure users, but also at the level of public policy, city planning, engineering, urban design and public health. Issues surrounding design choices and

planning are causing many constituencies to question current practices from a variety of perspectives.

A set of applied analytical tools for approaching and retrofitting the generic suburban strip to accommodate new growth in an urbanizing context are needed. These tools take architecture, planning, engineering, safety, and public policy into consideration to develop prototypical models that can be applied. Buford Highway exhibits many conditions that are universally applicable to corridors around the United States, particularly in suburban Sunbelt contexts. The Buford Highway corridor is viewed locally as the “poster-child” for poor design, so if tools are created for correcting the disconnect, they should have a universal applicability factor.

Notes

¹ Funded by The Center for Quality Growth and Regional Development, Dr. Catherine Ross, Director. The Center is a focal point, a think tank, and a catalyst to bring together the expertise, the individuals, and the necessary resources to develop innovative, responsible, and efficient solutions to the growth problems in the Atlanta region.

² Demographics and statistics from various sources but mainly 2000 Census Summary File 3, U.S. Census Bureau, 1990 Census Summary Tape File 3, U.S. Census Bureau.

A CASE FOR SYNTHESIS BETWEEN RESEARCH & PEDAGOGY: INCREMENTAL URBANISM

Gamble, Michael, and LeBlanc, W. Jude (Georgia Institute of Technology) {Paper}

There is to date a significant amount of writing on the connection between teaching and research within the university. One thing is clear – the statistical relationship between being a good researcher and being a good teacher is fraught with uncertainties. Architectural educators are no different; many of us have grappled with the issue over the last couple of

decades, especially as the discipline has become more professionally aligned. The Boyer Report from 1996 reiterates the point that professional development and preparation for practice comes first. Pedagogical goals at many institutions privilege praxis-based approaches over and above faculty research agendas, leaving many instructors at odds over just how to function as a researcher. This plays out in terms of how architectural departments are redefined and presented within the context of the larger institution. This uncertain union between research and pedagogy is in constant play, particularly during RP&T. Most tenure decisions are based on creative work/research, and teaching/pedagogy (and then rounded out by a record of service). One gain in this evolving debate is the resultant clarification of what was implied but often not stated in the traditional studio environment.

Most studio projects would naturally be based on a general observation that would be stated in terms of a problem or problems to be solved by some means over which controls were set. This process as described is remarkably similar to the three-fold constitution of “traditional research” – a topic is selected, the topic is problematized by a hypothesis (an educated guess based on an informed question) and controlled means are set up to test the results. Most graduate level architecture programs and some undergraduate programs culminate in a thesis project – a project based on a hypothesis and tested with a program and a site.

If we look far enough back in history, we see that the relation between research and teaching was much more explicit, depending on the departmental standards as well as the Institution. For example, the Russian Constructivist, El Lizzitsky, et.al., referred to the design studio as a laboratory. The ideology of one strain of modernism, functionalism, saw architecture as a solution to a problem creatively defined.

The work presented here is a collection of student work that responds to questions framed in response to a specific topic situated between architecture and urban design set up by the authors’ line of research inquiry. Through a grant, we developed means to test the capacity to reform suburban environments to acquire amenities associated with traditional towns and cities. The details of this work will be described

in the fuller text but our primary question concerns the capacity of suburban infrastructure to support pedestrian systems. Our site, a strip in Atlanta, Georgia, and our research to date formed the foundation of two separate Masters Projects Design Studios. The premise is supported by the fact that, in the years to come, many of our recent graduates will be working on projects on and around suburban peripheries. Our challenge is to invite students to think in larger circles and consider not just the single building, but reflect on ways in which other connections could be made in otherwise severely compromised environments.

Our research on contemporary cities such as Atlanta and Houston has led us to believe that a reassessment of how strip corridors could be revitalized is timely, especially considering recent literature on the relationship between poor health and a poorly planned built environment. Although suburban aggregation has been severely criticized in academia for decades as culturally unhealthy, it was only after allied professions of medicine and public health became interested and sounded an alarm related to problems like obesity that the issue began to get exposure among the general public. Our cross-disciplinary team has expanded to include researchers in public health and psychology at the Center for Disease Control and at UCLA, and most recently, a local municipality. We are working to develop an analytical framework and design alternatives that rehabilitate these underutilized territories and diminish the dominance of the automobile over the pedestrian in strip developments. The research begins with an assumed link between public health and the built environment. While there is significant writing on the subject, there are few examples of exactly how to implement change.

This study seeks to develop an analytical framework and design alternatives that act to allay the gap between the automobile and the pedestrian in grey-field developments. The study area is Atlanta’s Buford Highway, the most ethnically diverse corridor in the city and home to Atlanta’s Asian and Hispanic population. The highway is unique, with its own special demographics and characteristics, yet is representative of the major urban problems of many contemporary cities: ubiquitous strip developments that are single use,

low density, auto-oriented and, in this case, extremely dangerous, with a very high pedestrian kill rate.

The question remains: How can the linear layout of typical commercial strips be ameliorated to support pedestrian movement, when in fact, their morphology enforces walks that may be too long for most people? Our approach, while committed to practical strategies of how to realize interparcel connectivity and enhanced street networks, takes into account the fact that higher density development will remain nodal.

A CASE STUDY EXAMINING THE APPLICABILITY OF USING HEALTH IMPACT ASSESSMENT TO EVALUATE THE REDEVELOPMENT OF BUFORD HIGHWAY

Rutt, Candace (Division of Nutrition and Physical Activity National Center for Chronic Disease Prevention and Health Promotion Centers for Disease Control and Prevention) { Paper }

Over the last few years there has been a resurgence of interest in how the built environment affects people’s health. One potential tool for moving beyond theory to forge a better linkage in this area is Health Impact Assessment (HIA). HIA can be used to evaluate the potential public-health impacts of a policy or project *before* it is implemented or built. HIA is commonly defined as “a combination of procedures, methods, and tools by which a policy, program, or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.” While HIAs are similar to Environmental Impact Assessments (EIA), EIAs are mandated processes that focus on environmental outcomes such as air and water quality, while HIAs can be voluntary or regulatory processes that focus on health outcomes such as obesity, physical inactivity, asthma, injuries, mental health, and social equity.

The purpose of this project was to examine the potential health outcomes related to a street-scale urban design redevelopment project using Health Impact Assessment (HIA). The study area included 2.37 miles

along Buford Highway, a major seven-lane arterial in Atlanta, GA. A variety of methods (expert opinion, literature review, and modeling) were used to estimate potential health impacts.

HIA appears to be a potentially useful tool to build relationships across disciplines because it brings professionals together around a project or policy that facilitates learning and teamwork. HIA can also assist decision-makers understand how projects or policies impact health and show how a proposal can be modified to improve health. HIA is a promising new approach to quantifying the impacts of a wide variety of policy and infrastructure changes in a way that may allow health outcomes to be appropriately factored into complex decisions.

BEYOND CONFLICT: PARTICIPATORY DESIGN WITH THE HOMELESS – A NEW DESIGN FOR PEACHTREE-PINE

Like most cities in America, Atlanta has a substantial number of homeless citizens. The Task Force for the Homeless has been working for years to support those needing shelter in Atlanta and continues to come up with innovative ways to do so. Some of their most inventive work has taken place at its Peachtree-Pine complex, not far from the EDRA37 hotel. Led by the shelter’s in-house architect – an architectural graduate from Georgia Tech who lives in the shelter and works with its residents in designing improvements to their environment – this session provides a close look at some of the changes in-progress and others still to come.

Organizer: Perry, Luke (Task Force for the Homeless, Atlanta, GA)
Presenters: Dyke, Jules (Development Coordinator, Task Force for the Homeless); Harris, Troy (IT Systems Coordinator and Resident, Task Force for the Homeless); Houser, Hank (Houser Walker Architecture); Ball, Jennifer (Central Atlanta Progress); Prophitt, David (Community Resident & State Relay for Life Manager, American Cancer Society) {Invited Symposium}

Walking around downtown Atlanta, it is clear that there are exciting things happening. Buildings are popping up offering new options in urban dwelling. New residents are beginning to fill the streets and sup-

port retail opportunities in previously blighted areas. New tourist venues are bringing even more visitors to this city. Meanwhile, homelessness has continued to increase, causing significant conflict. And for many people, the Peachtree-Pine building represents a perfect example of how poor and homeless people cannot coexist right next to these new residents and tourists. But to many others, Peachtree-Pine offers a great hope to ensure that poor and homeless people are not excluded from the city’s exciting resurgence.

Peachtree-Pine is a historic 95,000 square-foot building located in downtown on Atlanta’s most famous corridor: Peachtree Street. Owned and operated by the Metro Atlanta Task Force for the Homeless, the building currently provides emergency shelter, transitional housing, and services to hundreds of people everyday. One would not expect to see the largest homeless shelter in the South just blocks from the tallest office building in the South. But, that is exactly what makes this project so exciting. We believe in a community, anchored by the building, that will allow people with and without homes to live, work, and play together successfully.

The Peachtree-Pine Design Project has been set up to turn the vision of Peachtree-Pine into a reality. This vision will continue to include basic services, shelter, and transitional housing. But, it includes retail options on Peachtree Street (art gallery, coffee shop, and restaurant) that will provide job training and employment opportunities as well as a destination for neighborhood residents. Additionally, this vision includes permanent housing, a training center for volunteers and a 25,000 square foot roof garden for the residents and community.

The project itself is about inclusion and has brought many people together to discuss dreams, challenges, realities, opportunities, but most importantly, solutions to move beyond conflict. Presenters include:

- Hank Houser, Principal of Houser Walker Architecture presenting some of the opportunities explored for applying green design strategies to reduce operational costs and improve the air quality for the Task Force’s visitors.
- Jennifer Ball, Senior Project Manager at Central Atlanta Progress discusses the importance of a down-

town building that looks good and has a healthy mix of activities in and around it.

- Shermarke Howard, Graduate Business student at Georgia State University highlights the role that students have played in developing business plans and strategies for the Task Force.
- David Prophitt, a neighborhood resident discusses the challenges that face this particular neighborhood and how a re-invisioned Peachtree-Pine could benefit the community.
- Willie Hightower, Security staff member and former resident at Peachtree-Pine discusses the involvement of those who are homeless in the process as well how the new vision will benefit them in the future.

Keywords: sustainability, social issues/social justice, participation, urban, architecture

BEYOND CONFLICT: A HISTORIC STORY OF URBAN PLANNING IN ATLANTA

*Organizer: Wolf, Jean
(GeoStats, LP, Atlanta, GA)
Presenters: Wolf, Jean (GeoStats, LP, Atlanta, GA); Meyer, Michael (Civil Engineering, Georgia Institute of Technology); Palladi, Joseph (State Transportation Planning Administrator, Georgia State Department of Transportation); and Caproni, Albert (Former President of CAUTION and the Freedom Park Conservancy, Inc., Atlanta, GA)
[Invited Symposium]*

THE HISTORY OF FREEDOM PARKWAY: TRANSPORTATION PLANNING, TRAFFIC ENGINEERING, AND PUBLIC INVOLVEMENT PERSPECTIVES

Wolf, Jean (GeoStats, LP, Atlanta, GA) {Paper}

Freedom Parkway is a 3.1 mile, four-lane, winding surface road located in downtown Atlanta. It opened in September 1994 and links the I-75/I-85 Downtown Connector with the Carter Center and continues northward to Ponce de Leon Avenue and eastward to Moreland Avenue. The parkway has light traffic, is lined with young trees, and is pastoral in nature, yet appearances can be deceiving.

There is probably no single highway project in the history of Atlanta that encompassed a longer time span and invoked such intense emotions from citizens, state officials, and a former U.S. president to the extent experienced with this parkway and its predecessors. Previous highway projects proposed for this area included I-485, the Stone Mountain Tollway, the East Atlanta Tollway, the Great Park, the Decatur Parkway, and the Presidential Parkway; however, none survived. There are some who refer to this 30-plus-year struggle as “the second Battle of Atlanta.”

Early transportation plans for this area called for I-485 to cut southward from I-85 along a rail line running between Midtown and the Ansley Park, Morningside, and Virginia Highland neighborhoods and to continue southward until it connected with I-75 below the city. The Stone Mountain Tollway was originally planned to start at the Downtown Connector, cross through the Fourth Ward and Inman Park neighborhoods, intersect with I-485 in the area of Poncey Highlands, and then continue to the northeast through Candler Park, Druid Hills and Decatur to connect with the Lawrenceville Highway.

In 1961, federal approval and funding was obtained to begin right-of-way property purchases for the downtown portions of Interstate 485. During the next 10 years, the Highway Department of Georgia acquired an X-shaped swath of land large enough to accommodate the proposed Stone Mountain Freeway and a portion of I-485. It is estimated that approximately 250 acres of land were acquired during this time period.

From 1960 through 1967, the Atlanta Area Transportation Study (AATS) was conducted to recognize and correct transportation system deficiencies in Metropolitan Atlanta and to plan for future transportation needs. In January 1971, the recommendations of the AATS were published, with the highway analysis component reinforcing the need for I-485 and the Stone Mountain Tollway.

The release of the AATS recommendations for significant highway expansion coincided with a growing disenchantment with urban highways experienced by urban citizens. In the area of Atlanta directly east of the CBD, the exodus of intown neighborhood residents leaving due to either the right-of-way purchases or the proximity of the proposed I-475 and Stone Mountain Tollway had ceased by 1971. In fact, a younger generation of citizens began moving into these older neighborhoods and renovating these historic homes. This influx of youth had the energy, education, and purpose to fight such mandates as highway expansion targeted for their neighborhoods.

In 1971, neighborhood representatives obtained a court decision granting suspension of I-485 construction until the environmental impact study

was completed. Soon after, Governor Jimmy Carter appointed a commission to examine the controversy associated with the proposed Stone Mountain Tollway. The Commission recommended that the highway not be built until the effect of the new MARTA East Rail Line could be assessed, stating that “while the decision to build would be irreversible, the decision not to build is reversible, leaving open the open to proceed at a later time.” In December 1972, Governor Carter officially accepted the recommendation.

After the City of Atlanta announced its opposition of I-485 in 1973, the Atlanta Regional Commission (ARC) deleted it from its regional plan alternatives in 1974, and the state Department of Transportation (DOT) board formally withdrew the project from its interstate highway plans in the same year. In 1977, the DOT sold back approximately 31 acres of right-of-way north of Ponce de Leon Avenue at fair market value.

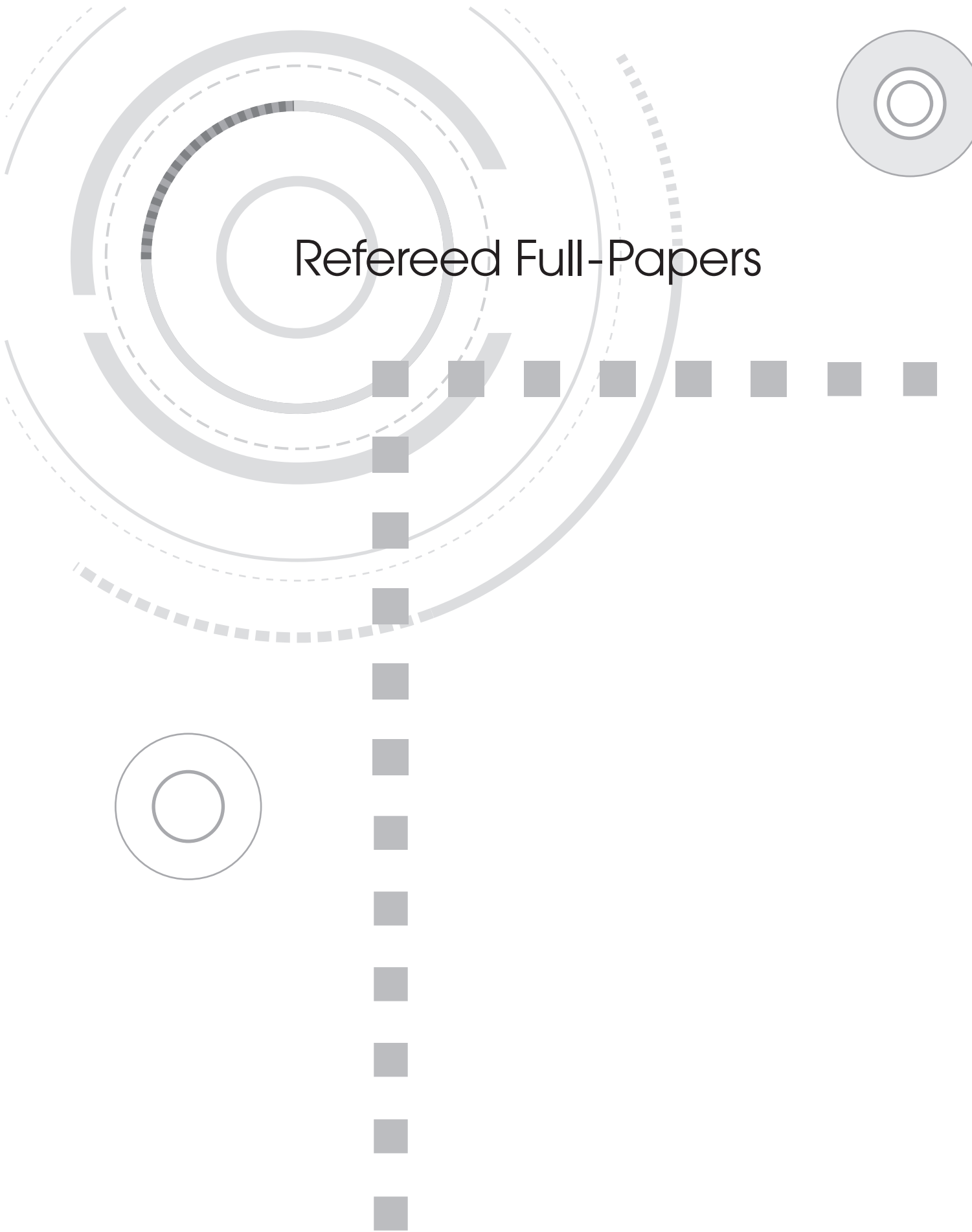
However, this highway battle was not over. The DOT had kept 219 acres of right-of-way for future transportation needs. In 1981, former President Carter returned to Atlanta and a decision was made to build his presidential library in the middle of the X-shaped right-of-way. For the next 10 years, a bitter battle raged over the newly proposed Presidential Parkway. Those for the parkway included the DOT, Jimmy Carter, and Andrew Young. Those against the parkway included numerous neighborhood organizations, the Atlanta City Council, and the Dekalb County Commissioner.

Elements of this battle included numerous court cases, public hearings, civil disobedience, and massive lobbying efforts. Legal fees alone for the neighborhood group were estimated in excess of \$750,000. Politics became paramount; the state DOT dug into its trenches, determined to provide a transportation solution while neighborhood groups rallied around a multi-faceted “Stop the Road” campaign.

Finally, in 1991, it took a county judge, a new governor, a new state DOT commissioner-elect, the City of Atlanta Planning and Development Commissioner, CAUTION (Citizens Against Unnecessary Thoroughfares in Older Neighborhoods), and an ISTEA exemption and limitation to force a compromise. The result was the \$15.8 million Freedom Parkway, which

opened in September 1994 – a 3.1 mile, four-lane, 35-mph restricted speed zone surface street with a \$2.1 million ice canopy. The state DOT was finally able to build a transportation facility on its right-of-way, and the neighborhood residents were able to limit the extent, size, and speed of the roadway. This session will present the history of the parkway from the various planning, engineering, and citizen perspectives.

Keywords: city planning, conflict, participation, transportation, urban development

An abstract graphic on the left side of the page. It features several concentric circles of varying shades of gray. A dashed line starts from the top left, curves around the circles, and then extends downwards as a vertical line. Along this vertical dashed line, there are several small gray squares. At the top right, there is a small circle with concentric rings inside. At the bottom left, there is another small circle with concentric rings inside.

Refereed Full-Papers

The following selection of papers showcases the broad scope of fields that characterize environmental design research. Issues and concerns about environment and behavior relationships in diverse societies are emphasized in these texts. Unfortunately it is this diversity that, rather than being valued and embraced, often triggers conflict.

The following selection of papers feature a wide array of place types, concepts, methods and theories, all advancing research within the field of environmental design. Underlying each of these different approaches is the need and desire for less formulaic options that are a) conducive to contemporary social, cultural, economic and political arrangements; b) representative of a diverse group of environments, such as office space, public space, production sites, and neighborhoods, among others; and c) demonstrative of both quantitative and qualitative methods. Each of these papers offers an insightful view of larger social and economic challenges and their effect on specific sites. Pluralism, modernization, and hybridization are some of the concepts featured here that hint at broader issues shaping physical form. These papers each focus upon a different avenue of environmental design, yet all illustrate how environment-behavior research is beneficial in both understanding and improving our world.

EDRA37 wishes to thank the following full paper reviewers: Mary Anne Akers, April Allen, Sally Augustin, Perver Baran, Natsuki Barazawa, Cindy Beacham, Robert Bechtel, Elena Maria Bilotta, Barbara Brown, Robert Brzuszek, Lise Burcher, Margaret Calkins, Hyejung Chang, Meldrena Chapin, Louise Chawla, Clare Cooper Marcus, Shauna Corry, Galen Cranz, Kristen Day, Kate De Medeiros, A. Sameh El Kharbawy, Beatriz Fedrizzi, Donovan Finn, Matthew Fisher, Lianne Fleming, Karen Franck, Gary Gaston, Lyn Geboy, Shelia Gobes-Ryan, Andrew Greenberg, Yasemin Ince Guney, Peter Hecht, Christopher Holscher, Jeffery Hou, Sandra Howard, Tomoaki Imamichi, Anjali Joseph, Joseph Juhasz, Abram Kaplan, Ellen Keable, Michael Lewyn, Janetta McCoy, Kang Mi-hyun, Nancy Miller, Daniel Mittleman, Gary Moore, Robin Moore, Kh Nahiduzzaman, Jack Nasar, Tanner Oc, Aydin Ozdemir, Hee Jin Pak, Celen Pasalar, Lynn Paxson, Lubomir Popov, Mike Powe, Matt Powers, Amos Rapoport, Beatriz Rodriguez-Villafuerta, Piergiorgio Rossi, Robert Ryan, Yasutaka Saito, Henry Sanoff, Veronica Sevillano Triguera, Robert Sommer, Johnnie Stark, Daniel Stokols, Patrick Sullivan, Susan Thering, Leyla Tokman, Honda Tomotsune, Szu Yu Tzeng, Jessica Van Houzen, Chris Watson, Richard Wener, Chang-Ling Yang

REFEREED
FULL-PAPERS

SEDENTARY & FLEETING ACTIVITIES & THEIR SPATIAL CORRELATES IN OFFICES

Rashid, Mahbub (University of Kansas,
Lawrence, KS); Craig, David (DEGW,
New York, NY); Zimring, Craig (Georgia
Institute of Technology, Atlanta, GA)

REFEREED
FULL-PAPERS

ABSTRACT

In this study of the relationships between knowledge worker activities and office design, two sets of activities – generically termed as fleeting and sedentary activities – are considered. Fleeting activities include walking (or movement), face-to-face interactions, and visible copresence (i.e., the number of people seen from a space or position). Sedentary activities include meeting, working on computer, talking on telephone, talking, writing, reading, paper handling, and pausing.

We observe these activities in a moderately large landscaped office using two different methods. One is the Time Utilization Survey (TUS) method where the field observer observes both sedentary and fleeting activities from a set of points on a predefined route. The other is the “space syntax” method where the observer observes fleeting activities as she walks along an observation route.

We investigate if the sedentary activities in well-defined spaces would have the same spatial predictors as the fleeting activities in ill-defined spaces. For this, we use two sets of spatial descriptors: One set includes integration and connectivity of spaces in a layout computed using the axial map analysis techniques of “space syntax”. The other set includes degree and closeness of individual workspaces in the network of visibility computed using the network analysis techniques. Our study shows that the fleeting activities are better predicted by integration and connectivity, while the sedentary activities are better predicted by degree and closeness. This finding is important for it suggests

that we may need different spatial strategies to influence fleeting and sedentary activities in offices.

Keywords: sedentary behavior, fleeting behavior, spatial predictors, Time Utilization Survey (TUS), space syntax, workplace/office

INTRODUCTION

Knowledge workers are a predominant workforce in our workplaces. For knowledge workers to thrive, organizations must support their workstyle – how they work and the kind of work they do. A proper understanding of knowledge workers’ work style may help us to design better workplaces promoting their control over the work environment. When a workplace meets the specific needs of knowledge workers and help them to take control of their own environment, knowledge sharing, teamwork, creativity and innovation improve.

In order to understand knowledge workers’ work style, we observe their activities in a moderately large office of a federal organization. Our observation includes two kinds of activities: sedentary activities in well-defined spaces (e.g., individual workspaces) and fleeting activities in ill-defined and fluidly occupied spaces (e.g., circulation spaces). In the sedentary activities, we include meeting, working on computer, talking on telephone, talking, writing, reading, paper handling, and pausing. In the fleeting activities, we include movement (or walking), face-to-face interactions, and visible copresence (i.e., the number of people seen from a space or position).

We use the behavioral observation techniques of TUS (Time Utilization Survey) and space syntax. TUS, a tool developed by DEGW, provides a very robust picture of space-utilization and activity patterns across distinct organizational subpopulations using a systematic, computer-aided process. However, TUS is not particularly effective at documenting relatively fleeting behaviors.

In contrast, the observational techniques of space syntax are effective in examining activities that may or may not be explicitly tied to work tasks and in covering ill-defined and fluidly occupied spaces. In addition, space syntax also includes a set of computerized techniques allowing systematic links to be

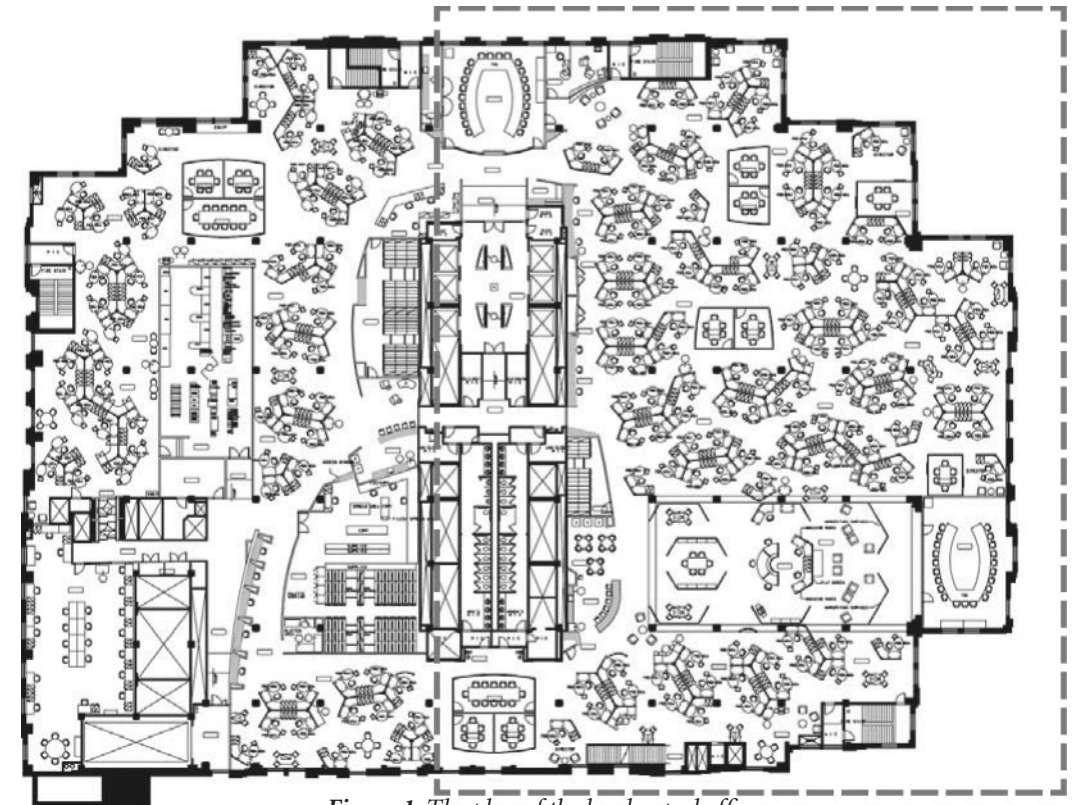


Figure 1. The plan of the landscaped office.

REFEREED
FULL-PAPERS

established between observed behaviors and different spatial attributes. Space syntax techniques achieve these advantages, however, through a relatively narrowed focus on space and behavior.

Taken together, these two methods produce rich and robust data that covers explicit work activities as well as secondary activities indirectly tied to work activities. In addition, these methods also produce data covering all types of utilized space, from well-defined spaces (e.g., private offices) to spaces in between (e.g., circulation). As a result, the behavioral data collected using the two methods may help us better understand the work styles of knowledge workers and the spatial correlates of these workstyles. We seek to understand these associations, because we want to use space to support knowledge workers’ work style.

METHODS

Overview

Our study was conducted at the new landscaped office of a federal organization. The office is located

in the downtown of a major metropolitan area. Our study included the office area shown within the dashed line (Figure 1). We performed the space syntax and visual network analyses of the layout, and observed behaviors using the space syntax and Time Utilization Survey (TUS) methods. These layout analyses and observation techniques are described below.

LAYOUT ANALYSIS

Space syntax

Space syntax techniques provide rigorous descriptions of building layouts (for details of the theories and techniques, see Hillier & Hanson, 1984; Hillier, 1996). For our purpose, we represent the layout as a set of the minimum number of longest sight lines needed to cover every space and to complete every circulation ring of the layout following the space syntax conventions (Figure 2). In the space syntax literature, each of these sight lines is known as an axial line, and the complete set of lines covering a layout as an axial map. An axial map provides

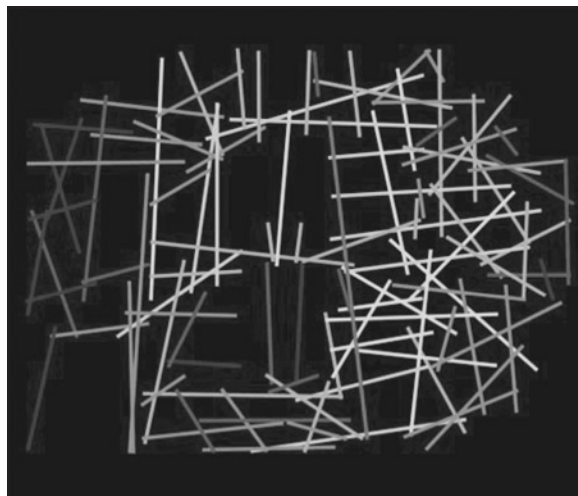


Figure 2. The axial map of the landscaped office colored using integration. The lines with high integration are shown in red and the lines with low integration are shown in blue.

a rigorous way to describe how we see and move in a layout based on the assumptions that in space individuals prefer to move along a straight-line as represented by an axial line unless there is a reason not to do so; and that the way individuals move in space is very often defined by the number of choices available from their lines of movement.

The “Spatialist” computer program, developed at Georgia Tech, was used to assess the relational pattern of the axial lines in an axial map (Peponis et al., 1998, 1998a, 1997). We use two important descriptors of interconnectedness of the axial structure, connectivity and integration, in our present study. Connectivity of an axial line is the number of axial lines directly connected to the line. Connectivity, a local property of an axial line, is interesting because it describes the degree of choices present on the line: Higher connectivity means more choices of movement from the line. Integration, on the other hand, is a global property describing the connectedness of an axial line to all other axial lines of an axial map: Higher integration of an axial line means higher degree of accessibility from all other spaces. The length of axial lines, representing the reach of the visual field of a space, is also used in the study to describe the degree of visibility available from the space.

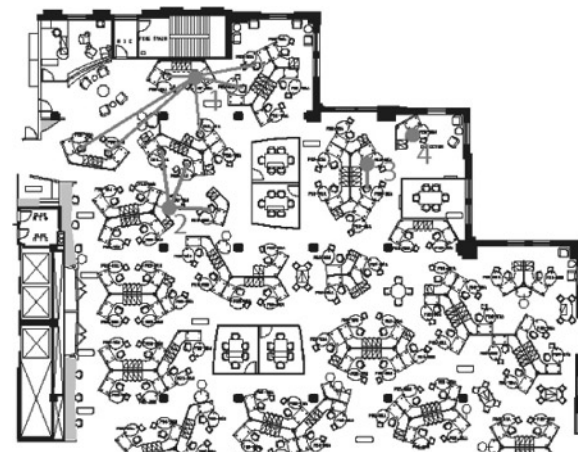


Figure 3. The number of workspaces seen from four different workspaces: Workspace-1 sees six workspaces; workspace-2 sees three workspaces; workspace-3 sees one; and workspace-4 sees none.

Visibility network

In order to find out how an individual workspace is connected to all other workspaces in the network of visibility, we develop a square array or matrix where the rows and columns of the array include all individual workspaces of the network and the cells of the array describe the relationships of visibility between all pairs of workspaces using ones and zeros. If two individuals are visible to each other, then each of the two cells describing their relationships get ones; and if two individuals are not visible to each other, then their corresponding cells get zeros. In order to find out who are visible to whom, we draw the 360° visual field from the workstation of each individual. Anyone inside the visual field of an individual would then be visible to the individual. Figure 3 describes the general outcome of the process.

Representing the visibility network data in a matrix format easily allows us to apply the network analysis software to summarize and find various patterns in the network. For this study, we use Ucinet for Windows (2002) to calculate two network values: degree and closeness. The degree of an individual workspace is the number of other individual workspaces visible from the workspace. It is thus a measure of how exposed a workspace is to other workspaces around

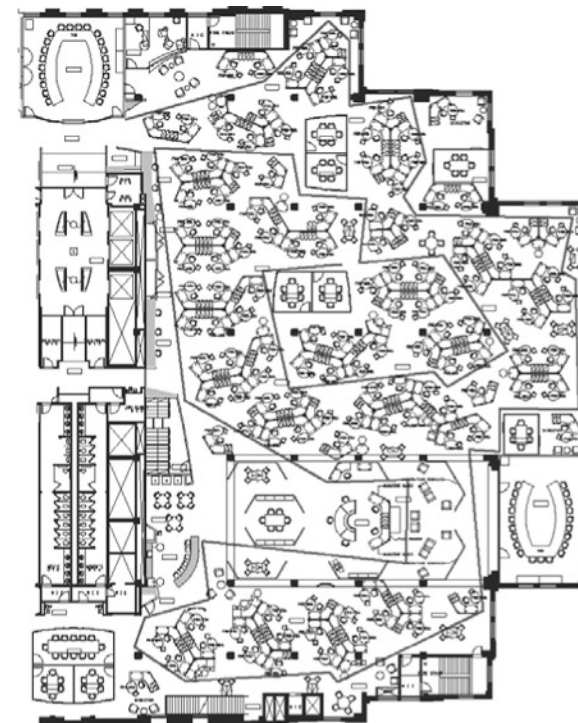


Figure 4. The observation route used for the space syntax method.

it: Higher degree means more immediate exposure of an individual workspace to other workspaces. Degree may positively affect face-to-face interaction in a setting. In contrast, it may also be a source of stress. A person visible by more people may feel a lack of privacy, may be forced to stay longer in her workstation, may be forced to work more, or may simply pretend to work more under constant surveillance.

Closeness of a workspace describes how close the workspace is to all other workspaces in the visibility network. It is computed based on the shortest distance (i.e., minimum number of intervening persons) between any two individual workspaces in the visibility network. It is a descriptor of how visible a workspace is in the whole visibility network: Higher closeness means more exposure to all workspaces in a setting. In this sense, the effects of closeness may be similar, but more intense, to those of degree.



Figure 5. The observation route used for the TUS method.

BEHAVIOR OBSERVATION

Space syntax observation technique

The space syntax observation technique uses the linear segments of an observation route as units of observation. The field observer observes behaviors along each observation segment as she walks at a regular pace (Figure 4). This linear technique of observation, being continuous in space and time, has been very effective in examining fleeting behaviors that may or may not be explicitly tied to work tasks in ill-defined and fluidly occupied spaces (such as corridors, lobbies, and lounges). In addition, this technique has allowed us to link systematically observed spatial behaviors to various attributes of the axial lines of the axial map of a layout.

In our study we limit ourselves to three fleeting spatial behaviors, which are movement, interaction and copresence. *Movement* was defined as the number of moving people, *face-to-face interaction* as the number of people seen engaged in face-to-face interaction

Table 1: Correlations among people performing different generic functions (for all route stops, N = 227)		
	total observed people	total people meeting but not walking
total interacting people	0.72(0.00)	0.95 (0.00)
total active people	0.98(0.00)	

Table 2: Correlations between activities and group size (for all route stops, N = 227)							
	meeting	talking	telephone	computing	writing	reading	paper handling
1 person	-.18(0.01)	.39(0.00)	.56(0.00)	.89(0.00)	.50(0.00)	.59(0.00)	.32(0.00)
2 people	.38(0.00)	.48(0.00)	.15(0.02)	ns	ns	ns	ns
3 people	.59(0.00)	ns	ns	-.14(0.04)	ns	ns	ns
4 people	.70(0.00)	ns	ns	-.16(0.02)	ns	ns	ns
5 people	.49(0.00)	ns	ns	ns	ns	ns	ns

and *visible copresence* as the number of visible people, active and/or inactive, along a segment of the route. For recording purposes, we use an up-to-date floor layout with the route drawn on it. The space syntax analysis of the layout is performed before selecting a route. Based on the analysis, integrated as well as segregated spaces of different types are included in the route. In total, about thirty rounds of observation are made along the route.

TUS Observation Technique

In contrast to the space syntax observation technique, the Time Utilization Survey (TUS), a tool developed by DEGW Consulting, is a point-based observation technique where the field observer walks along a route to observe behaviors only at a pre-defined set of points (known as “route stops”) (Figure 5). By providing temporally and spatially discrete description of behaviors, the point-based technique gives the observer a greater flexibility in sampling. The types of behaviors and the number and types of spaces one can observe in a point-based technique are limited only by the purpose and resources available for a project. For convenience and economy, we use about 210 route stops in our study. The observer use a hand-held computer telling her where and what she should be observing.

For our study, we use four categories of route stops: workspaces, ancillary spaces of a department, support spaces shared by all departments, and paths or circulation spaces, and observe some twelve types of activities and/or non activities: empty, temporarily unoccupied, meeting, working on computer, talking on telephone,

talking, writing, reading, paper handling, pausing, and activity data not obtainable. For each route stop in a circulation space, we also record both static (standing, and standing and talking, etc.) and moving (walking, and walking and talking, etc.) activities.

RESULTS

Characterizing the work environment

According to our analysis of the observational data, people are very active as well as interactive in the setting. The correlation between the total number of observed people and the total number of active people, and between the total number of observed people and the total number of interacting people are very strong ($r = 0.98$, $p = 0.00$; $r = 0.72$, $p = 0.00$; respectively). The correlation between the total number of interacting people and the number of people meeting but not walking is also very strong ($r = 0.95$, $p = 0.00$), suggesting that most observed interactions are static and somewhat formal in nature (Table 1).

In addition, when working alone individuals are likely to use computers most ($r = 0.89$; $p = 0.00$). When alone, they are also likely to talk, telephone, write, read, and handles papers, but not as much as they would use computers ($r = 0.39$; $p = 0.00$; $r = 0.56$; $p = 0.00$; $r = 0.5$; $p = 0.00$; $r = 0.59$; $p = 0.00$; and $r = 0.32$; $p = 0.00$; respectively).

With another person, individuals generally do meeting, talking, or telephoning ($r = 0.38$; $p = 0.00$; $r = 0.48$; $p = 0.00$; $r = 0.15$; $p = 0.00$) but do not do computing, writing, reading, or paper handling (as there are no significant correlations between the number

Table 3: Correlations between spatial variables and movements observed at route stops and path segments				
	Movement (with no activity) at route stops	Movement (with talking) at route stops	Total movement at route stops	Movement recorded on path segments while walking (N=32)
For all route stops (N = 227)				
recorded on	path segments	while walking	(N=32)	
Integration	0.15(0.02)	0.17(0.01)	0.17(0.01)	
Connectivity	0.19(0.00)	0.18(0.01)	0.20(0.00)	
Degree				
Closeness				
For route stops on paths only (N = 51)				
Integration	0.25(0.07)	0.28(0.05)	0.29(0.04)	0.57(0.00)
Connectivity	0.25(0.07)	0.24(0.08)	0.28(0.04)	0.68(0.00)
Degree	ns	ns	ns	
Closeness	ns	ns	ns	

Table 4: Correlations between the number of temporarily unoccupied assigned workspaces and spatial variables (for all workspaces, N = 119)	
Number of temporarily unoccupied assigned work spaces	
Integration	ns
Connectivity	ns
Degree	ns
Closeness	-.21(.02)

of interacting people and these activities). In a group of three or more, people generally do meetings, and generally do not do any other activity (Table 2). The trend regarding group behaviors does not change for different categories of spaces.

Spatial correlates of fleeting and sedentary activities

Accessibility of a layout as described by space syntax and visual connectedness of the visibility network of workspaces affect movement in space, but in different ways. All kinds of movement (or walking) tend to decrease in more visually well-connected locations. In contrast, they tend to increase in more axially connected or accessible spaces. The latter trend is stronger when movement is recorded along the path segments by a moving observer (integration: $r = 0.57$, $p = 0.001$; connectivity: $r = 0.68$; $p = 0.00$) (Table 3).

However, accessibility described by space syntax does not affect whether a space is temporarily occupied or not, but visual connectedness of the visibility network does. The chance that a space may remain temporarily unoccupied during a workday decreases as visual closeness or centrality of the space increases. This is evident in the fact that the number of times a space is tempo-

rarily unoccupied decreases for more visually central locations (closeness: $r = -0.21$, $p = 0.02$) (Table 4). This suggests that an individual at a more a visually central location is likely to remain at her desk longer.

Again, interconnectedness or accessibility of a space within a layout calculated from the axial map does not affect interactions in a space, but visual closeness calculated from the visibility network does. Our analysis shows that the total number of people interacting decreases at more visually central locations. In addition, the number of interactions involving two people also decreases at visually central locations. This trend becomes stronger in some interaction types when we consider interactions in the workspaces only (Table 5).

For observations recorded using the space syntax method, the trend however is reversed. We observe that both total number of interacting people and the number of interactions involving two people decreases in spaces with higher integration and connectivity. For these spaces, we find no correlations between interaction and degree or between interaction and closeness (Table 6).

Additionally, interconnectedness of a space within a layout calculated from the axial map does not affect

Table 5: Correlations between the number of people interacting and spatial variables		
	Total interacting people	Number of 2-people interactions
For all spaces (N = 227)		
Integration	ns	ns
Connectivity	ns	ns
Degree	-0.18 (0.01)	-0.21 (0.00)
Closeness	-0.19 (0.00)	-0.22 (0.00)
For workspaces only (N = 119)		
Integration	ns	ns
Connectivity	ns	ns
Degree	-0.2(.03)	-0.19(.04)
Closeness	-0.33(.00)	-0.39(.00)
For route stops on paths only (N = 51)		
Integration	-0.3(.03)	-0.29(.04)
Connectivity	-0.3(.03)	-0.25(.07)
Degree	ns	ns
Closeness	ns	ns

Table 6: Correlations between sedentary work and spatial variables (for all route stops, N = 227)					
	telephoning	computing	writing	reading	paper handling
Integration	ns	ns	ns	ns	ns
Connectivity	ns	ns	ns	ns	ns
Degree	0.16(0.02)	0.17(0.01)	0.15(0.03)	ns	0.21(0.00)
Closeness	0.24(0.00)	0.34(0.00)	0.22(0.00)	0.22(0.00)	0.27(0.00)

the type of activity in a space, but visual closeness calculated from the visibility network does. All kinds of sedentary work increase in more visually central locations (Table 6). We observe no change in the trend in different kinds of workspaces.

SUMMARY AND DISCUSSION

In sum, the findings of our study were as follows:

- Most observed interactions were static and somewhat formal in nature.
- People performed different activities individually and in groups.
- Integration and connectivity showed good positive correlations with movement. In contrast, degree and closeness of a space in the visual network showed negative correlations with movement.
- Whether a space remained occupied or not during the workdays was affected by degree and closeness, but not by integration and connectivity of the space.

- Interaction in a space was affected by degree and closeness, but not by integration and connectivity of the space.
 - All kinds of sedentary work increased in spaces with high degree and closeness, but integration and connectivity of a space had no effects on sedentary work in the space.
- The study was interesting for it used two different observation techniques in order to capture as many activities in as many spaces as possible within the office. As result, we got a very robust description of both sedentary and fleeting activities in the office. The data allowed us to study the association of these activities with each other, and to find out the spatial correlates of these activities.

For the study, we used two sets of spatial descriptors, and our findings regarding spatial correlates of activities were interesting from both design and theoretical standpoints. From design standpoint, the findings suggested that different activities were associated with

different attributes of design: Sedentary activities were associated more with the properties of visibility network of individual workspaces, and fleeting activities were associated more with the properties of the axial maps (i.e., the network of sightlines).

These findings make perfect sense from a theoretical standpoint. The axial map analysis is based on the assumption that our movement in space may depend on visual and physical accessibility and, as a by-product of their effects on movement, these spatial attributes may also affect face-to-face interaction and visible copresence. In contrast, the visibility network analysis assumes that how we see others from our workspaces may have effects on how we act in these spaces because of mutual surveillance. It is then only natural that we should find better correlations between fleeting behaviors and the descriptors of axial maps, and between sedentary behaviors and the descriptors of visibility networks. However, it is difficult to generalize our findings, because our observations using both the TUS and space syntax techniques were completed at one landscaped office only. It may be useful to see if space would have similar associations with knowledge workers’ behaviors in other more visually restricted and geometrically regular office settings.

AUTHORS’ NOTE

This research was made possible by a contract from the US General Services Administration (GSA).

REFERENCES

- Borgatti S P, Everett M G and Freeman L C. 2002. *Ucinet for Windows: Software for Social Network Analysis*. Harvard, MA: Analytic Technologies.
- Peponis J, Wineman J, Rashid M, Bafna S, Kim S H. 1998. *Describing Plan Configuration According to the Covisibility of Surfaces. Environment and Planning B: Planning and Design, Vol. 25*, pp. 693–708.
- Peponis J, Wineman J, Bafna S, Rashid M, Kim, S H. 1998a. *On the Generation of Linear Representations of Spatial Configuration. Environment and Planning B: Planning and Design, Vol. 25*, pp. 559–576.
- Peponis J, Wineman J, Rashid M, Bafna S, Kim S H. 1997. *On the Description of Shape and Spatial Configuration Inside Buildings: Convex Partitions and Their Local Properties. Environment and Planning B: Planning and Design, Vol. 24*, pp. 761–781.

STRESS & STUDIOS A POST-OCCUPANCY EVALUATION OF STUDIO SPACES IN THE COLLEGE OF ENVIRONMENTAL DESIGN AND PLANNING

Meger, Sophia
(Arizona State University, Tempe, AZ)

2006 EDRA37 Student Award Winner

PROBLEM STATEMENT

Studio environments are a crucial setting for design education. The main program requirement is to provide space for the optimal performance of creative work by students. Creative process research suggests that stress has a major disruptive influence on creativity; yet architectural school milieu is often described as particularly stressful. In addition to investigating studio environments and their educational implications in general, this investigation focuses in particular on stress related issues of the studio. Besides the scarce literature on this topic, the main information source is an analysis of existing studio environments. The goal is to identify positive and negative factors in studio design, subsequently leading to strategies to be employed in either designing new studios or enhancing existing ones.

LITERATURE REVIEW

Although literature on this specific topic is limited, there are three tangential bodies of literature providing rich insight into aspects of the problem. Literature on architectural education provides a wide range of publications on the design of architecture schools and a few comparative analyses of architectural schools. Literature on the design of educational facili-

ties in general provides a series of case studies and design guidelines. The last group of literature is based on environmental behavior research, in particular work environments. This group also addresses issues of stress, creativity, person-environment relationships, and personal versus social space.

ARCHITECTURAL EDUCATION

Browsing through publications on architecture school design, the focus is frequently set on visual depictions of the buildings (photographs, sometimes plans). Programming is mentioned as prescribed and accepted. Even when the effort of closer consideration of the program is made in the overall design, studios are treated as a stereotypical category. The look at comparative research provides some information about the tradition of the studio and its core character. As early as 1932 “A study of architectural schools” (Bosworth et al., 1932) describes studios (“drafting rooms”) as the student’s “home room” and ‘architectural student’s club” with a twenty four hour use encompassing a variety of programs.

In “The Design Studio” Schön (1985) describes the studio in these words: “The setting is a loft-like space in which each of twenty students has arranged his or her own drafting tables, papers, books, pictures and models. This is the space in which students spend much of their working lives, at times talking together, but mostly engaged in private, parallel pursuit of the common design task.” Boyer (1996) observes the isolation of studios from the outside world: “Cloistered into the captivity of studio, the studio commands an increasingly greater role as the center of students’ social lives, and consequently, the world outside studio becomes less important.” In a statistical survey investigating “Indicators of the Quality of Programs in United States Architectural Education” Burgess (1980) categorizes physical resources as one of the main components defining the overall quality of a program. The studio is mentioned as one of nine subcomponents, and is first quantitatively assessed (studio area per full-time student), and then attributed with a basic array of equipment. Besides the individual space need the requirement of space for class presentations and

display is stated. A connection with the field of Environmental Behavior is formulated in “a Documentary Study of Design Courses” (Rauh, 1976). This work acknowledges the direct influence of the physical environment on the creation of the social environment. After touching Barkers Behavioral Setting Theory (Barker, 1968) Rauh implies that conclusions of these studies are applicable for the architectural studio. Further he offers a case study in which students who were formerly avoiding work in studio, moved back in after the introduction of carpeting and other sound control devices and a small kitchen. Unfortunately no further details on this case are given. The author concludes, “It makes sense that if the studio, where students spend so much of their time, can offer some basic physical amenities for eating, washing, napping, and relaxing, and as well offer students companionship and information exchange, many more students will choose to work at the studio”. However, he warns that even good environments can fail to provide a strong social environment by the “disintegrating nature of the administrative structure”. Further, studio culture and recommendations for healthier studio habits are explored in “The Redesign of Studio Culture” (AIAS, 2002).

EDUCATIONAL DESIGN

In terms of advancing to the body of literature dealing with design of educational facilities in general, the book “Educating by Design” (Strange et al. 2001) is of particular interest. It discusses the role of the physical environment on education, along with the influence of human characteristics. Further it derives actual design guidelines and evaluation methods and an extensive bibliography.

ENVIRONMENTAL BEHAVIOR

The last group informing this project is environmental behavior. The volume “Environment and Behavior” (Porteous, 1976) provides a very direct connection between abstract theory and design implications. In particular the chapters on territoriality, personal space, and adaptivity are applicable for this topic. Binding even closer in the particular interest in

stress is the research performed by both McCoy and Evans (2004). Their most recently published chapter about the role of the physical work environment in stress provides a thorough overview of research performed in this field and identifies actual risk factors and implications of spatial organization.

POST-OCCUPANCY EVALUATION

The College of Architecture, Environmental Design and Planning inhabits two buildings, located in the northwest corner of the ASU (Arizona State University) Main Campus in Tempe. The program contains a library, offices, classrooms, computer labs, workshops, bathrooms, a cafe and studios, spatially seen the most extensive part of the overall program (see Illustration 1).

A *studio* has been defined as “a workplace for the teaching or practice of an art” (*The Cognitive Science Laboratory at Princeton University, WordNet lexical database*). In the given situation, studios are both design classrooms, and spaces to exercise design work. This study investigates the studio as a spatial and behavioral setting, which has also been referred to as “design lab” and “drafting space” (Bosworth et al., 1932). Generally, students are assigned a studio space when enrolled in the corresponding class. In CAED, students majoring architecture, landscape architecture, planning, interior design and industrial design occupy studio space. Students in those fields frequently spend most of their time inside the studio environment, including weekends and nights. Accordingly, studios host a number of different activities and require a number of different qualities. Drawing, writing, reading, talking, discussing, eating, drinking and relaxing add up to a wide range of activities. Besides these general activities, each major has specific requirements, which should be further analyzed.

OUTLINE OF INQUIRY PROCEDURES

This inquiry aimed to provide (A) insight into spatial factors of the studio environment; (B) assessment of activities; (C) evaluation of stress factors; and (D) other observations by the students. It was based on eight stu-

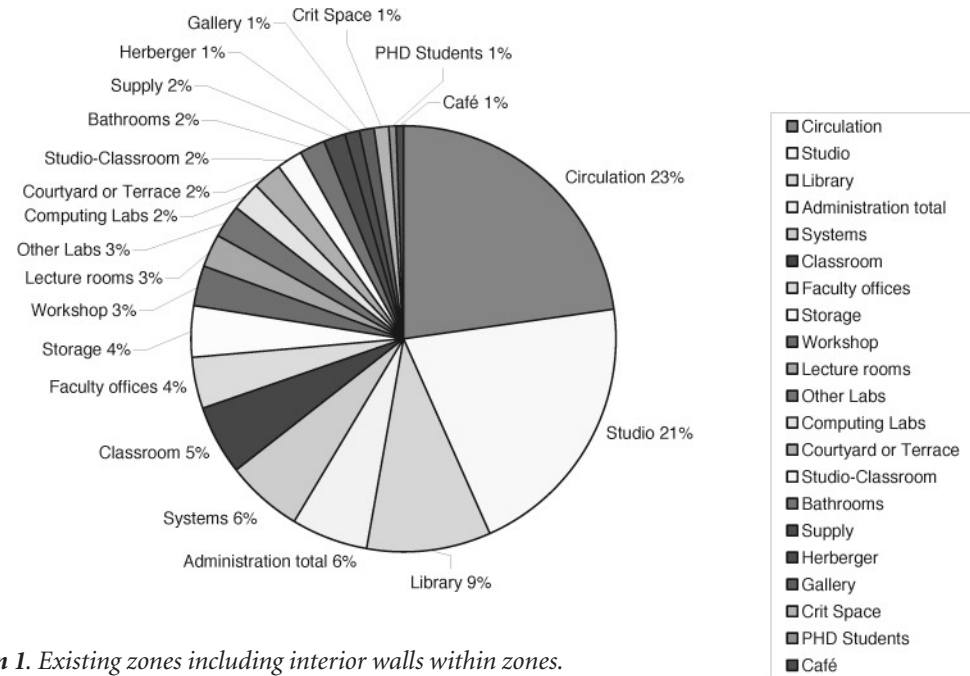


Illustration 1. Existing zones including interior walls within zones.

dios, including studios from each major. One hundred questionnaires were distributed at the students' studio desks and collected one week later. The response rate was forty-two percent. Two studios were later excluded from the analysis; the planning studio, which was used

more as a regular office environment and a landscape studio that had migrated out of the window-less space the students had been assigned too. One studio (no. 240) that turned out to be a classroom setting without personal workspaces was further considered due to

Studio no.	Major	Total No. of students	Square footage	SF per student	Prevalent gender	Average age	Orientation of windows
385	Landscape	21	1008	48	–	24	E
383	Interior Design	21	1437	68	f	22	N, E
367	Architecture	14	1243	88	m	25	N
269	Architecture	15	1243	82	–	20	N
240	Graphic Design	n/a (classroom)	1134	n/a	f	23	S
265	Industrial Design	24	1480	61	m	25	W, N

Figure 2

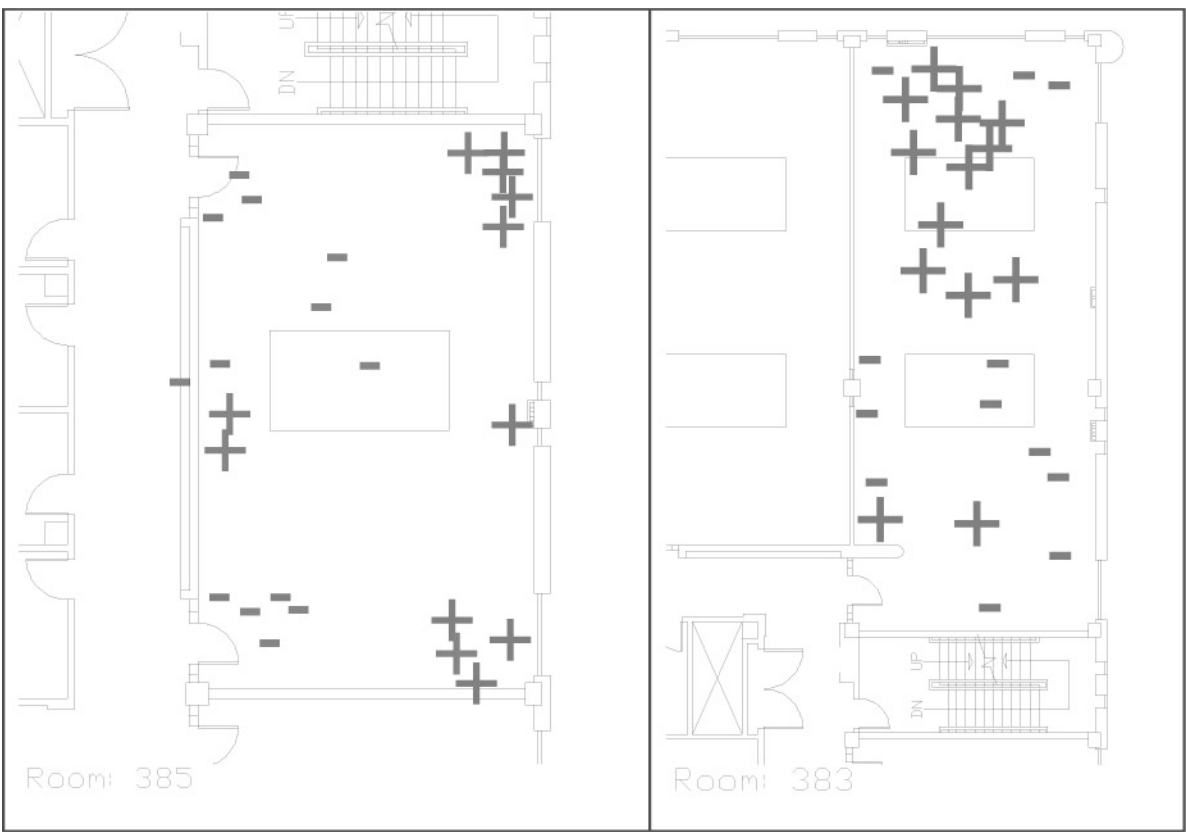


Figure 3

their great response rate. The complete questionnaire is included in the appendix of this paper.

RESULTS AND ANALYSIS OF COLLECTED DATA

Evaluated Studios

The following table summarizes key information on each analyzed studio. The evaluation is based on forty-two participating students in six different studios. Studio number 240 is located in the older South building; all other studios are in the newer North Building. (Figure 2).

Spatial characteristics

In the first part of the questionnaire the students were asked about the best and the worst spots in their studio. They marked plus (best) and minus (worst) signs on provided floor plans. The following plans indicate the results for each studio. Red color stands

for female students, green for male students, and black for unknown gender (Figures 3 and 4).

The plans clearly depict a positive attitude towards the windows, and a negative accumulation near the doors. Studio no. 240 is an exception since it is used as a classroom without individually assigned space; in this studio visibility and accessibility by the teacher were main pluses. Other pluses towards the middle of the room have been explained as good spaces since they were not as crowded as the window areas, yet not right next to the door. Further analyzing the explanations of the students, windows were generally rated positively, and doors negatively. Studio no. 240 is an exception since it is used as a classroom without individually assigned space; here visibility and accessibility by the teacher were main pluses. However, both doors and windows were associated with a number of sub-implications. Windows were attributed by natural light, view, and natural ventilation while doors were attributed to traffic and noise. Figure 5



Figure 4. Best & worst spots in studios.

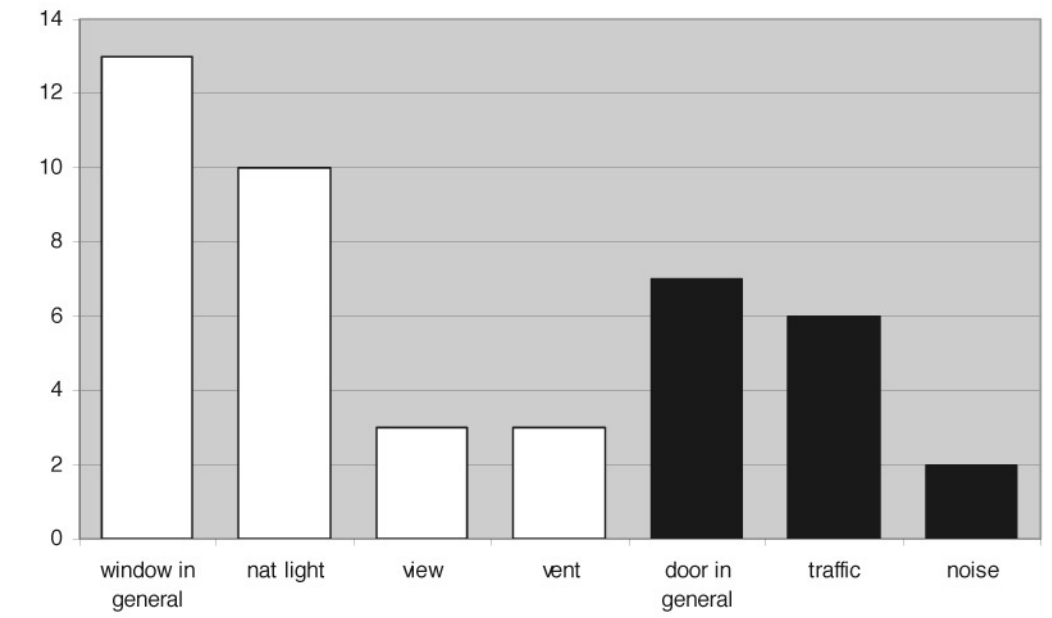


Figure 5. Side factors for windows & doors.

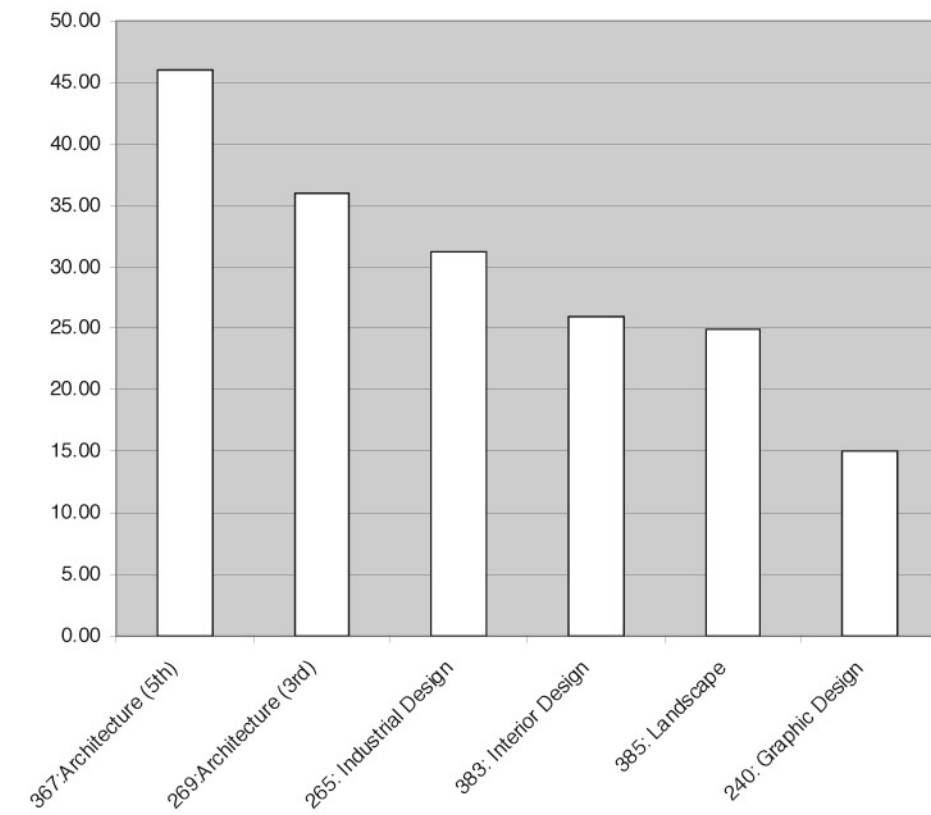


Figure 6. Weekly hours spent in studio.

	367: Architecture (5th)	269: Architecture (3rd)	265: Industrial Design	383: Interior Design	385: Landscape	240: Graphic Design	Overall Ranking
Sketching	3.0 (0.8)	1.4 (0.48)	1.25 (0.38)	1.4 (0.48)	2.0 (1.0)	1.71 (0.82)	1.79
Talking	2.8 (0.96)	2.0 (0.4)	2.13 (0.66)	1.2 (0.32)	1.75 (0.38)	1.00 (0.00)	1.81
Computer	2.2 (1.04)	2.2 (0.64)	2.5 (1.00)	1.6 (0.96)	2.25 (0.88)	1.29 (0.49)	2
Drafting	4.0 (0.8)	1.6 (0.48)	3 (1.5)	2.6 (1.28)	1.25 (0.38)	3.43 (1.80)	2.65
Model Building	2.6 (1.12)	2.2 (1.12)	2.5 (0.63)	2.8 (1.04)	2.75 (0.75)	3.86 (1.02)	2.78
Reading	2.8 (0.32)	2.8 (0.64)	4.13 (0.44)	2.8 (0.32)	2.5 (1.0)	2.71 (0.90)	2.96

Figure 7. Studio Activity ranking ranked high (1) to low (5).

indicates the number of answers on the Y-axis. White columns stand for positive effects, black columns for negative effects.

Activities within the studios

The second part of the questionnaire focused in assessing the activities within each studio. The next diagram depicts self-reported weekly average hours spent in studio by major. The fifth year architecture studio reported over 45 hours weekly, while on the other end of the scale the classroom like setting of studio no. 240 reported least hours spent in studio. However, the standard deviation within each studio amounted between five to fifteen hours a week. (Figure 6)

The next step investigated activities performed in studio. The table above displays results from high overall ranking activities at the top to rare activities at the bottom. Summarizing two overall trends can be seen; sketching, talking and working on the computer are very common, while drafting, model building and reading are ranked low. Exceptions are the third year architecture and landscape studios, which still per-

form a lot of drafting. Other popular studio activities include eating, sleeping, crits, meetings, and listening to music. Studio 367 mentioned ping-pong playing as a popular activity. (Figure 7)

Stress within studios

The third part focused on issues of stress within the studios. First, without further clarification, students were asked how stressful their studio environment is. The chart below (Figure 8) indicates how many students perceived their studio as rather stressful (red) or relaxing (blue).

The next question aimed to clarify which particular factors are stressful in each studio. Categories extracted from the literature review on work stress (McCoy et. al. 2004) were individually assessed. The lowest scoring category “disturbance by natural light” was added due to the desert location and to understand whether with a majority of people working on computer screens, it may become a stressor. (Figure 9)

Red highlights indicate the highest scoring rating in each category. Studios are sorted from left to right,

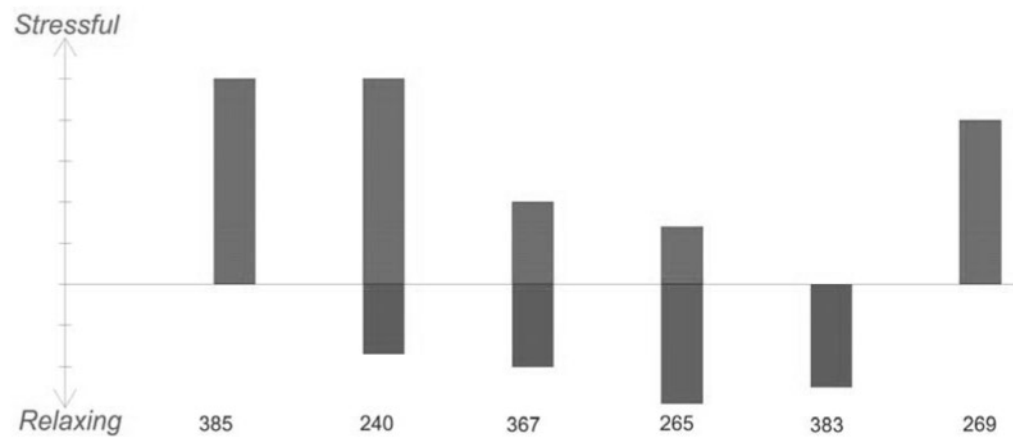


Figure 8. Overall Stress.

Studio:	385	240	367	265	383	269	Average	SD
Lack of Infrastructure	4.0	2.8	3.0	3.4	3.3	1.8	3.1	(0.51)
Lack of space	4.3	1.8	3.0	1.7	2.5	3.2	2.7	(0.73)
Temperature	4.0	2.7	3.8	1.0	2.5	1.4	2.6	(0.92)
Noise	2.3	2.7	2.4	2.7	3.3	1.6	2.5	(0.40)
Air quality	4.3	2.5	2.0	1.1	2.5	2.2	2.4	(0.65)
Aesthetics	3.8	3.7	1.7	2.6	1.5	1.2	2.4	(0.94)
Lack of privacy	3.5	0.3	3.0	2.0	3.0	1.4	2.2	(0.96)
Quality of Artificial light	1.8	2.8	2.7	2.4	1.3	2.4	2.2	(0.46)
Lack of natural light	2.0	3.2	2.0	2.7	1.0	1.6	2.1	(0.57)
Lack of visual connections to outside	3.8	1.5	1.7	3.0	1.3	1.6	2.1	(0.83)
Bad Maintenance	2.3	3.7	2.0	1.8	0.7	1.6	2.0	(0.64)
Disturbance by natural light	0.8	0.7	0.0	0.7	0.8	0.0	0.5	(0.32)
Studio Average	3.0	2.4	2.3	2.1	2.0	1.7	2.2	

Figure 9. Individual stressors (5=highest ranking).

starting with the highest stressor average. Remarkably, except for studio no. 269 all studios correspond to the initially assessed overall stress rating.

The last part investigating in stress aimed to detect strategies that students developed to cope with varies stressors. The chart (Figure 10) indicates stressors in red and strategies in blue. The Y-axis indicates the total number of students reporting. Most strikingly, the reaction to noise is the use of headphones throughout all studios.

DISCUSSION AND RESULTING DESIGN GUIDELINES

Natural Light

Both the evaluation of best spots in studio and the results of “lack of natural light” as a stress factor suggest that studio spaces should have access to natural light. Along with a good light quality, windows are positively associated with views of nature and natural

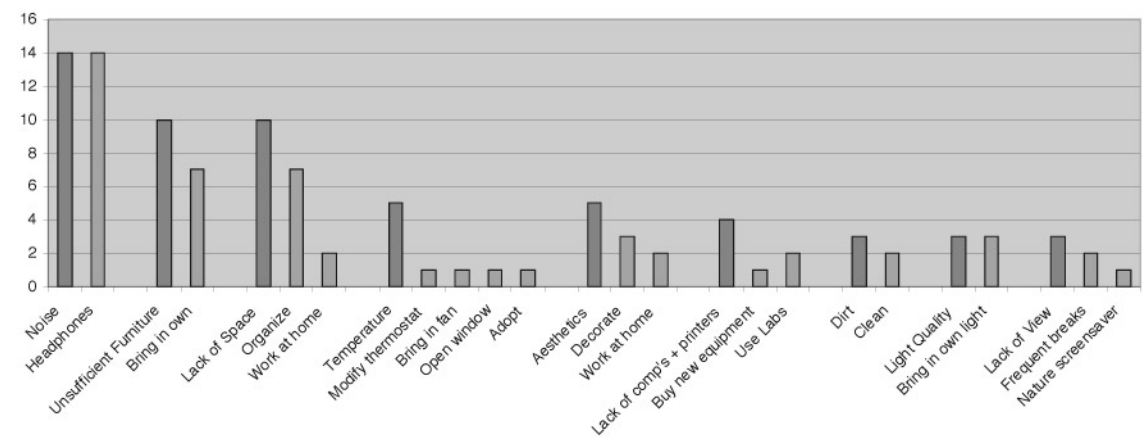


Figure 10. Stressors & common coping strategies.

ventilation. Thus the content of the view should ideally include vegetation and the window should be operable. If studio depth does not allow all workplaces to face a window, barriers between the workspaces should be designed to allow the light to filter into the back of the room and to maintain visual axis’s to the window.

Acoustics

A very common stressor in the studio environment is noise. Students complained about other people’s conversations, both between studio mates and on the cell phone, music, and traffic noise. Throughout the studios headphones were used to mediate this stressor.

Considering that “talking” is the highest ranking activity inside studios, acoustics become an important challenge. First, surface materials should be considered. Pin-Up surfaces and space dividers can become acoustic buffers. Meeting areas and other communal resources should be oriented towards the door. If the studio furniture setup is planned, traffic patterns should be considered. Provide additional spatial or physical separation between the main traffic path and adjacent workspaces. Further the overall concept of the school should provide a variety of communication spaces scattered throughout the building. Located adjacent to studios, they can alleviate some of the acoustical burden by attracting cell-phone users and informal conversations.

Privacy

Privacy of individual workspaces and a loft-like open character of studio space are often considered contradictions. In the analyzed case the faculty has been discussing the pros and cons of open studio spaces for years, not coming to a consensus. The current condition divides each studio by permanent, non-bearing walls. Students rated the lack of privacy as an average stressor, except for a studio with a very high density (see studio no. 385). The density forced students to occupy space in direct adjacency to the doors, and allowed for no separate communal areas. Thus it could be argued that open studio environments can be successful and maintain a comfortable level of privacy, by providing sufficient space per students. The data collected suggests that a square footage of

fifty sq ft per student is insufficient, while seventy too ninety sq ft per student have less negative effects on students in the current setting. In order to generalize to completely open environments, an additional study of open studio environments has to be performed.

At this stage, the author tentatively suggests that square footages per students in the upper range (ninety sq ft per student) and beyond could be successful and feasible by saving circulation, and construction space and costs.

Traffic Patterns

Main traffic areas, specifically zones near the main access points to the studio have been clearly marked as the “worst spots” in studio. Particularly in large open studio spaces, traffic planning becomes important. Comparably to a neighborhood, a hierarchy of access paths should be developed, incorporating key infra-structural elements at strategic positions, e.g. communal printer stations, microwaves, and refrigerators.

Infrastructure

The lack of infrastructure, further described as insufficient equipment, furniture etc, ranked highest among the stressors. The fact, that they are paying large sums of tuition, yet are facing insufficient equipment, is perceived as unsatisfactory. In the study most students brought in their own chairs, task lamps, computers and printers. Graduate architecture studios purchased their own plotters. Throughout the studios provided computers had serious maintenance issues, which led to the purchase of personal laptops. As a result, demands of power outlets and wireless network accessibility are high.

Systems

Both air quality and temperature were rated as significant stressors. However, individual thermal comfort varies greatly. Thus systems allowing personal adjustment are preferable. A low cost variation is to zone clusters of the studio into cool and warm spots, allowing students to choose their area according to their own personal comfort.

Storage

Students report high storage demands for a variety of items. Throughout the studios, individual laptops and other valuable electronical devices are common, thus a safe storage option is recommended. Students who travel by bicycle, suggested bicycle storage as well. Further, models and plans demand special storage solutions. Model racks offering space for several models have been successful in different studios.

Relaxation

Studios with high weekly usage have to support a variety of student needs. Relaxation is important in order to maintain continuous productivity. Studios can actively contribute to this restorative process by offering windows with views of nature (see above), and comfortable furniture. Five out of six studios in the study have brought in couches or lounging chairs, and describe them as very important. One studio (no. 367) introduced a ping-pong table. As a result, students in this studio mentioned “playing ping-pong” as one of their studio activities. Surprisingly, no complaints about noise caused by the game were recorded. Further proposals by the students include providing shower, sleep areas, and fitness equipment.

Safety

Studios house valuable equipment and objects. In the range of this study only one student complained about theft from his studio, but multiple bicycle thefts were reported. The current layout of the studios allows a certain control of access by number combination locks on studio doors. On the administrative side fear of higher theft rates is a major argument against open studio environments. The reviewed literature, e.g. Strange et. al. (2001), suggests that creating a feeling of identity within the environment has positive effects on the formation of territoriality. Thus students may be engaged into watching the environment, detecting intruders rather than ignoring them. This effect can be architecturally supported by creating a series of communication spots, potentially strengthening social ties, and opportunities for active engagement within the built environment. In a highly creative field providing the opportunity to design parts of their environment, and allowing change to

happen can create that effect. Further health safety has to be considered. Reports of serious to fatal car accidents before final deadlines are sufficient evidence of the seriousness of this topic (AIAS, 2002). In areas with far commuting distances, a sleeping area could alleviate this danger. In general, promoting a healthy environment can add to the general health of students. In particular, good air quality, ergonomic furniture, and good lighting conditions were highlighted by students throughout the study.

REFERENCES

Barker, R. (1968). *Ecological Psychology; Concepts and methods for studying the environment of human behavior*. Stanford, CA: Stanford University Press.

Baling, J., and Kelloway, E. (Eds.). (2004). *Handbook of Work Stress*. Thousand Oaks, CA: SAGE Publications.

Bosworth, F. (1932). *A study of architectural schools*. New York: C. Scribner’s sons.

Burgess, H. (1980). *Quality of Program Indicators in United States Architectural Education: A statistical survey*.: Rice University.

Boyer, E., and Mitgang, L. (1996). *Building Community: A New Future for Architectural Education and Practice*. Princeton, N.J. Carnegie Foundation for the Advancement of Teaching.

McCoy, J. M., and Evans G. W. (2004). Physical Work Environment. In J. Barling, and Kelloway, E. (Eds.), *Handbook of Work Stress* (pp. 220ff). Thousand Oaks, CA: SAGE Publications.

Porteous, D. (1977). *Environment and Behavior: planning and everyday urban life*. CA: Addison-Wesley.

Rauh, R. (1976). *Beginning design courses at schools of architecture in Western Europe :a documentary study*. Cambridge, Mass: Harvard University.

Schön, D. (1985). *The Design Studio : an exploration of its traditions and potentials*. London: RIBA Publications.

Sommer, R. (1969). *Personal Space; The Behavioral Basis of Design*. NJ: Englewood Cliffs.

Strange, C. and Banning, J. (2001). Educating by Design. *Creating Campus Environments that Work*. San Francisco: Jossey-Bass.

The American Institute of Architecture Students. (2002). *The Redesign of Studio Culture: A report of the aias studio culture task force*. Washington, DC: AIAS.

CHILDREN’S NOTIONS OF ENVIRONMENTAL CARE: THE CASE OF A LOW-IN-COME MUSLIM NEIGHBORHOOD IN INDIA

Chatterjee, Sudeshna (North Carolina State University, Raleigh, NC)

2006 EDRA37 Student Award Winner

ABSTRACT

Children’s care for special places in the environment for which children have respect has been theoretically considered one of the six dimensions of place friendship in childhood (Chatterjee 2005). Children’s direct experience of the outdoors, which is the most common way for encountering places and developing feeling for places, has been considered the single most important factor in developing personal concern for the environment (Tanner 1980, Palmer 1993). Moreover, children’s feelings and emotions about their everyday environment help children learn about place, and by studying these place reactions of children it is possible for adults to understand what kind of places children find most satisfying (Matthews 1992). This empirical study was conducted in a low-income traditional Muslim settlement in central New Delhi in India to find out how middle-school Muslim children develop “friendly” relationships with the physical environment by demonstrating caring environmental behavior. Using eclectic field-based ethnographic research strategies, the study explored children’s feelings and emotions about “friendly” places in the everyday environment. The findings of this qualitative study demonstrate 1) the importance of an emotional focus in environmental education for middle childhood, 2) understanding the socially constructed nature of environmental care in a culture, in order to promote responsible envi-

ronmental behavior in children, and for promoting responsible environmental citizenship, and 3) the role of design in communicating clear evidence of environmental care to invoke caring behavior in the child user.

INTRODUCTION

Children’s care for special places in the environment for which children have respect has been theoretically considered one of the six dimensions of place friendship in childhood (Chatterjee 2005). Childhood experience of the outdoors has been established as the single most important factor in developing personal concern for the environment (Tanner 1980, Palmer 1993), and environmental sensitivity, which is associated with responsible environmental behavior and awareness (Chawla 1998). Moreover, children’s feelings and emotions about their everyday environments help children learn about place, and by studying these place reactions of children it is possible for adults to understand what kind of places children find most satisfying (Matthews 1992). It is with this belief of learning from children’s feelings and emotions about places, that this empirical study was conducted in a low-income, traditional settlement in central New Delhi in India to find out how children develop “friendly” relationships with the physical environment. This paper discusses the empirical findings of middle-school Muslim children’s notion of environmental care as one way of thinking about the environment as a friend. If we have some places in childhood that we have learned to care for, we are generally more prepared to care for places when we grow up. The findings of this study has important implications for environmental education (EE) in middle childhood, understanding the socially constructed nature of environmental care in a culture, and implications for design in communicating clear evidence of environmental care.

ENVIRONMENTAL CARE AS A DIMENSION OF PLACE FRIENDSHIP

The six criteria of friendship – 1) mutual affection and personal regard, 2) shared interests and activities; 3) commitment; 4) loyalty; 5) self-disclosure and

mutual understanding; and 6) horizontality – was established by Doll (1996) after her review of the literature on friendship in childhood. These criteria were translated in environmental terms to develop a framework for place friendship (Chatterjee 2005) – 1) environmental care, 2) place-child exchange, 3) learning and competence, 4) control of place, 5) regulation of feelings and emotions in secret places, and 6) freedom of expression. Doll, borrowing from Hinde (1979), illustrated the first friendship criterion as one by which each friend demonstrates a caring responsibility for the other. In other words, concern for a friend is translated into action through demonstration of care.

Conceptualizing environmental care as a place friendship dimension in childhood is strongly anchored in the notions of environmental concern of children. Though Hart (1997) argues that there is very little research on how and why children develop concerns for the environment, he and others (Hart and Chawla 1981, Chawla 1988) before him posited childhood animism or the “tendency to find intention and consciousness in things that are inanimate” (Hart 1997, 18), as the basis for children’s caring for the non-human world. According to Chawla & Hart (1995) childhood animism may form the emotional basis for environmental concern. And this caring concern for the inanimate environment is shaped by opportunities for direct contact with nature and through social learning (Chawla 1988).

Following the notion of animism, a child develops mutual affection and personal regard for a place that has pleasing intrinsic qualities capable of delighting, and holding the child from harm (Chatterjee, 2005). When the opportunity is provided to the child to care for such a place, the child is likely to participate in reciprocating in caring for the place. As in fact Piaget (1926/1960) had noted through his observations of children collecting a few pebbles or flowers at a time so that they would not feel lonely, or frequently rearranging stones along pathways so that stones may enjoy different views, animism often assumes a form of respect for non-human things in childhood. The formulation of environmental caring through friendship with place (Chatterjee 2005) is also in keeping with the commonly expressed viewpoint in EE that

“the very young should first be friends with and love and feel the natural world...” (Sheryl Schoenfeld, quoted in Tanner 1977, 49; and Chawla 1988, 16).

One of the goals of EE is to include “environmental sensitivity to the learner’s community in early years (Tbilisi Declaration, UNESCO 1980, p.72).” The EE goals of developing an environmentally conscious citizenry are evident in several local projects involving the school community (of which Robin Moore’s Washington Yard is a notable example) in creating and caring for natural schoolyards. Such projects are driven by the need to instill responsible environmental behavior: in-depth knowledge of the issues, personal investment, knowledge of and skill in using environmental action strategies, an internal locus of control, and the intention to act (Chawla 1998). Projects such as the Washington Yard also demonstrate what sustainable development means on the ground from a design perspective (Moore 1995). Projects of this type however, are rooted in the Western tradition of favoring and promoting the natural environment under the “concern for environment” banner (Hart 1997). Hence understanding of children’s environmental concern, as well as EE curricula have been accused of being biased due to the western culture’s preoccupation with romantic ideals of childhood and its special relationship with nature (Hart & Chawla 1981; and Chawla 1994). This cultural favoritism is further reflected in analysis of autobiographies (Tanner 1980, Peterson & Hungerford 1981, and Chawla 1986) that revealed that the sense of connection to nature in adult lives was anchored in interest and affection for nature and positive experiences outdoors in childhood. Wals (1994:12) showed that even children growing up in poor inner city neighborhoods in Detroit had “developed a sense and a taste for nature”, even though this nature was experienced in their back alleys. These Detroit students gave meaning to the concept of nature through their own neighborhood experiences – “In my neighborhood we find lots of nature. Flowers that you don’t plant will grow and we have a tree that’s in the next block that nobody planted, it just grew!” (Wals 1994, 14).

Though the value of the natural world in children’s outdoor experience has been established as fundamental in developing ecological concern and knowl-

edge, little is known about how such concern develops in children growing up in environments that are undergoing rapid change due to urbanization in developing countries. How do children develop concern for the environment while growing up in surroundings that are devoid of nature, and where the nature of childhood itself deviates from the romantic ideals of a happy protected precious life stage? Do children growing up under these circumstances fail to appreciate, value and care for the environment? The Growing Up in Cities research in an Indian slum near the rapidly urbanizing city of Bangalore did show that boys from the slum sought out secluded natural areas outside their settlement for different play needs and restorative experiences. The girls in this community regularly participated in cleaning the houses, and decorating the threshold with *rangoli* or intricate designs made of rice flour every day. The public realm was rarely the concern of householders for daily care, though some families swept the streets and cleaned the drains in front of their homes (Banerjee & Driskell 2002). However our knowledge about childhood place experience from developing communities is limited, and we know little about how and why children in contested living environments engage in caring for the environment, and hence develop friendship with place. In this paper the empirical findings of a study that explored the notion of children’s environmental care as a part of a larger research on children’s friendship with place are discussed. This study was conducted in a low-income, high-density residential area in New Delhi, in India.

RESEARCHING MIDDLE SCHOOL CHILDREN’S PERCEPTION OF ENVIRONMENTAL CARE

The central objective of this study was to understand how middle-school children develop friendship with place by using the six dimensions of place friendship. In this paper, however, only the findings of the first place friendship dimension – environmental care will be discussed.

According to Kytta’s (2003) model of environmental child friendliness, the most child friendly neighborhood conceptually is one that allows maximum independent

mobility such as in a highly pedestrian neighborhood, and allows actualization of plentiful environmental affordances such as in neighborhoods well endowed with socio-physical resources. Conceptually these parameters made sense. I chose to do a richly documented case study in an Indian neighborhood that best approximates Kytta’s criteria of environmental child friendliness.

Context of study

The chosen context for this empirical study was Nizamuddin Basti, an 800-year-old settlement in the heart of central New Delhi. Large parts of the settlement were closed to vehicular traffic due to the narrow street widths. This theoretically ensured better access to the outdoors by children and youth. The settlement housed a 12,000 plus population (close to 50% of which were children and youth), with a homogeneous religious base (95% Muslim). Nizamuddin Basti is a low-income settlement, with 32 listed monuments of national and international importance, several structured and unstructured open spaces, and an uncertain legal status due to non-existent documentation of land ownership. The common ills associated with most poor inner city neighborhoods such as poverty, drugs, are also found here. Though unlike many such environments, Nizamuddin Basti had a very strong socio-cultural network and perceived sense of community among residents owing mainly to the common religious base.

Research Methods

Hope India Project, an NGO that worked in Nizamuddin Basti in New Delhi to improve opportunities for education and health, and to develop livelihood options, gave me access to the community. Hope teachers collaborated with me in randomly sampling students from the chosen age group (11 & 12 year olds) by drawing up age-specific list of students both from the non-formal morning school, and the afternoon tuition classes for children who attended local government schools. Hope social workers took me on neighborhood walks to gain familiarity of the community. They also introduced me to key resource persons in the community for interviews.

The participants were initially 31 children. Some of these children attended the municipal schools

in the local area, while a few (8 girls) attended the non-formal adolescent girls school run by Hope India Project. All the sixteen girls in the sample regularly engaged in housework and sibling care, whereas the boys helped out in small-scale family-owned businesses, and by performing outside chores. These children had limited toys and dressed similarly to adults. Informed consent forms for both children, and parents were sent home. Parents had been read and explained the content of the form during the first community workshop. Parents signed and returned the forms to the school, whereas children signed the forms in front of me.

During the course of my research on how children develop friendship with place, I empirically explored, among other things, whether children had places in their everyday environment that they could respect for both the intrinsic qualities of the place and for what the place offers to the child; whether children cared for these places enough to want to take responsibility for place maintenance and cleaning; and whether children's desire for caring action was promoted in the community. Initially in-depth individual interviews were conducted with thirty-one children. The study was subsequently extended to focus groups discussions with 70 girls (9–16 years), and 45 boys (9–16 years), field trips with a subsample (six boys and six girls) representing children who had demonstrated the maximum use of outdoors during the interviews. Several students completed the drawing assignments

of 'perception of neighborhood', 'favorite places', and 'disliked places'. Only a few students (four) kept a daily journal of activities for a week. Several other interviews were conducted with parents, teachers, and city official-planners, landscape architects, architects, park attendants. In addition I spent several hours each week observing the daily life of the community in places nominated by children as "friendly places". These observations, supported by children's narratives about these places have provided me some insights about the social and functional meanings of these places for children.

FINDINGS

To understand the friendship dimension of environmental care, I asked children to talk about places for which they had respect and a desire to care for the place. Additional questions were asked to probe if children actually participated in environmental care. This category received the maximum number of place nominations (41) from thirty-one children. These nominations were spread over eleven types of places (Chart 1), the least number of place types nominated in any place friendship dimension. This indicates that these children, who live within a 500 meters square local area, have a similar frame of reference for places, which they respected, and loved for being a well cared for place.

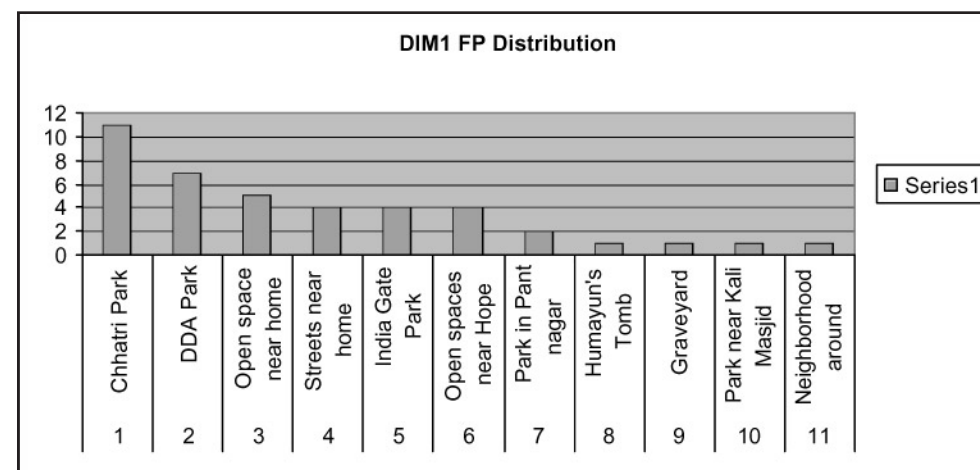


Chart 1. Distribution of Friendly Places that children respected & cared for.

The highest nomination in this category was a carefully landscaped neighborhood park that was located in the heart of the adjoining middle-income neighborhood. My sample of 31 children came from all over the low-income settlement of Nizamuddin Basti. Only the girls who lived in Nizam Nagar, the farthest enclave from Umbrella Park within the Basti did not refer to this park as a friendly place under any dimension. The second highest nomination was for another park on the outskirts of the Basti. This park was designed and maintained by the Delhi Development Authority (DDA). This park also had greenery, a few trees, and a well-defined path for walking. The Nizam Nagar girls voted this DDA Park as a friendly place under most place friendship dimensions more than any other place as this park was adjacent to their residential precinct. Both these parks were devoid of any play equipment and they did not allow any active sport like cricket or football, the two most loved sports in the community.

It is interesting to note that children growing up in a densely built urban neighborhood with crumbling infrastructure and litter in their surroundings, but with several different social and religious settings of immense importance (for example, Nizamuddin Auliya's tomb complex popularly called the *Dargah* in the community is the internationally acclaimed birthplace of Sufism), nominated two of the three designed open spaces in their local area as places that they respected and cared for. These parks – Umbrella and DDA parks – were not designed as places for children as a lack of play equipment readily suggests. It was even clearer when the Delhi Development Authority (DDA) appointed caretakers of the DDA Park told me, "we repeatedly tell the children not to play cricket here, but still they play! This is a public park, it is not meant for one group to control the park through its play. They

should be playing in the fields designated for sports." No sports fields existed within miles of this local area.

However, contrary to the gardener's talk, the DDA Park (Figures 1 & 2) did not result from an Olmstedian vision of providing a general recreation ground where classes and ethnicities easily mix in common enjoyment. The DDA park located on the western edge of the settlement adjoining a major city traffic artery, instead, is closer to the Lynchian idea of edges where (to quote Kevin Lynch) "Such edges may be barriers, more or less penetrable, which close one region off from another...(1960, 47)." According to Bowman and Pagano (2004) cities strategically use vacant land along edges to isolate, rather than to unite: "Vacant lots and abandoned structures assume the mantle of the proverbial 'railroad tracks' that separate people by income, class, and race. That is, vacant land often sets apart neighborhoods, creating boundaries between human settlements (p 93–4)." The DDA park, created by demolishing a slum called Katra Ahiran in the mid-eighties, serves many purposes for the city – it helps to create a green buffer zone between the city and the unwanted Basti dwellers, it helps to maintain the property values of surrounding high-income residential and commercial plots, and it enhances the image of green Delhi.

The Umbrella Park was created by the Residents Welfare Association (RWA) in Nizamuddin West in the heart of C-block (Figures 3 & 4). The children christened it *Umbrella Park* because it had three concrete umbrellas over the entrance gate. However, this park was open to users for only a few hours during the day – 7–10 AM, and 5–7 PM.

Not all children were allowed inside. For example the adolescent boys of the Basti were not allowed inside, nor were Basti children allowed to bring in play objects such as football or badminton equipment or anything else. They mostly came empty handed, in groups. They



Figure 1. DDA Park as seen by the city.

played tag, hide-n-seek or sit around and play more passive rule-bound games. In contrast, the children from Nizamuddin West, the legitimate users for whom RWA created the park, came loaded with sports gear. They skated on the grass wearing heavy roller-skating boots; they played football and badminton, mostly with their attendant maids. The caretaker of the park did not tell them off. The Basti children, as long as they played by the stringent rules, were allowed in.

Yet these places (rule bound designed parks) held special meaning for children, and they managed to carve out territories despite being told off several times. The lure of a structured well-kept landscape in their otherwise filthy, debris-strewn local streets and open spaces seemed very strong. Analysis of interview transcripts of this dimension of environmental care allowed me to understand why these children cared for, and respected these two parks the most among all the other thirty seven place types and unique places that children had nominated as friendly across all dimensions of place friendship.

The attributes that were common to both the parks for invoking respect and concern of children were: providing experiences of nature; a clean, well-maintained environment, a safe, controlled environment; and opportunities for play and social interactions. Umbrella Park scores over the DDA Park in providing a prettier environment that is variously attributed to its different design features and overall ambience. Children also reported restorative experiences in Umbrella Park.

PLACE ATTRIBUTES OF CARED FOR AND RESPECTED PLACES IN CHILDHOOD

Environment Providing Contact with Nature

“The best things about Umbrella Park are the flowers, the trees and the grass. This park has different kinds of flowers.”

“There’s greenery all around (in DDA Park). There are different kinds of trees as well.”

These statements indicate that these children growing up in a dense, heavily built-up inner city neighborhood do feel connected to nature even though nature was experienced only through flowers, trees and grass in small park settings which were not created for enjoyment by the children’s community. The children sought out nature-rich environments as part of their everyday neighborhood exploration and through play. Even though this particular neighborhood had several different historic settings with interesting architectural features such as different tomb complexes, children chose parks over buildings for reasons as varied as countering boredom at home (*I go there quite often. Whenever I feel bored at home, I go over there*), for feeling good by being in a natural setting away from their cramped living quarters, and for peace and quite away from the noisy, bustling neighborhood (*Over there in the park, it is very peaceful. One can sit around quietly, walk around exploring things...*).

Clean, Well-Kept Environment



Figure 2. DDA Park, inside greenery & pathway.

“I love to go there (Umbrella Park). It remains clean.”

“The care taker looks after the place (Umbrella Park) well. It is a very special place.”

“The gardener here (DDA Park) looks after the park.”

The children of Nizamuddin Basti lived in an environment that many planners and architects would describe as “nightmarish” due to the state of the crumbling infrastructure, filth on the streets, and hazardous scenarios such as jumbled up electricity cables hanging low over the

streets within adult and often child’s reach. Many children told me that they had to hold their breath when they stepped out of their homes due to the garbage on the streets. This often was a reason, other than gender restrictions for older girls to not want to go outdoors.

In India, the public place is the *profane* space with its material and sensual pleasures. The details of doorways in traditional homes emphasized the sharp polarization of the inner sacred realm and the outer profane space. The doorway was the point of transformation between the outer, mundane world of men and the holy inner world of God (Amarillo Museum of Art, 2002). Other scholars studying public places in India have noted that the public place was meant for peeing. This is how many Nizamuddin residents use public place, as most people do not have toilets at home, and the public toilets are pay per use.

In this context, the lure of a well-kept, clean environment even if it meant following strict rules, and suffering social class-based discriminations (such as limited play options for Basti children in Umbrella Park as compared to C-block children who brought in many toys and gadgets for play), drew both boys and girls in their middle childhood years to the most accessible (DDA Park) and best maintained (Umbrella Park) parks in their local area.

Rules for Protecting the Place

“Littering is strictly forbidden in this park (Umbrella Park). So it remains very clean.”

“Cricket is not allowed. If we want to play cricket we play in the yard across from Umbrella Park.”

“Plucking flowers is not allowed here (Umbrella Park). But I don’t like plucking flowers anyway. We never create a mess when we play. It is not allowed.”

The children of this study were accustomed to living in environmentally degraded surroundings where lit-

tering in the public space was the norm. Moreover the cultural apathy to civic cleanliness in places beyond *self*-ish domains made the neighborhood environment both filthy and disorderly. In addition, the major business that employed most poor migrants to this neighborhood from Muslim communities across India and Bangladesh was the scrap sorting business owned by powerful local men with political connections. This was one of the major reasons why municipal action to clean the neighborhood were resisted as that action directly harmed the business interest of power groups.

The rules against littering, plucking flowers and playing active sports in well-maintained places contributed to the children’s sense of high degree of maintenance and care in these rule-bound designed places. Children seemed to have internalized the message that the character of these places needed to be protected when they told me: “We feel that a beautiful place should be kept that way. We never create a mess when we play there (in the parks).” Though this was not strictly true as several children and adults littered the DDA Park, which did not enforce rules as rigidly as the Umbrella Park. But disobedience is more due to the lack of proper maintenance provisions such as garbage bins than bad intentions.



Figure 3. Umbrella Park, node in the path.

Environment Supportive of Play

“Umbrella Park is a large park. Though there is no play equipment here, but we can run around and play many things. We visit the park in the evening. We play pakdan-pakdai (tag), baraf-pani (a variation of tag).”

“I go there (DDA Park) mostly with my friends. We play ‘pakdan-pakdai’ (tag), ‘chhupkan-chhupka’ (hide-and-seek). We hide behind the graves and the wall. Most of the time we play ‘pakdan-pakdai’. We can also play ‘bat-ball’ (cricket).”

Both the parks had clear circulation paths, and grassy lawns in addition to trees and flowering shrubs. Most of the time children ran around the lawns, tag being the most popular and appropriate play for children without many toys and gadgets. Children also played hide and seek, using the volume of the vegetation and other features such as the graves and raised platform in the DDA Park to hide their bodies. As long as children played by the rules where they were not using other equipment to aid their play, the gardeners and caretakers did not ask them to leave. The DDA Park often was a site of contest between boys' need to play ball games such as cricket, and gardeners' dominant egos to control the park environment. Gardeners of the DDA Park admitted to me that there were no designated places for boys to play active sports in the neighborhood, but they had been instructed by DDA to keep such activities away from the park.

Environment Supportive of Social Interactions

"Lots of people from my neighborhood go there (Umbrella Park). I always meet people I know."

"...Sometimes if I go with my brother (to Umbrella Park), I take a cloth for spreading on the grass for sitting."

"I like to roam around the open spaces in and around the park (DDA Park) with my friends. I don't think there is anything special in the place. I like it because my friends come with me and we spend time together."

"I go there (DDA Park) with my brothers and sisters and my father."

The DDA Park was the space where the community relaxed in fair weather. It virtually became a living

room in summer evenings for families who did not have that facility at home. This was the space where they met their friends and neighbors, and held family meetings while cooling off outdoors in hot summer evenings. The Umbrella Park was first of all not in the heart of this poor community, and secondly was a site of class conflicts where better off Nizamuddin West neighborhood residents kept a watchful eye on the visiting poor community. Hence the Basti community met each other in Umbrella Park on their evening visits for short periods of time. Further the recent gender segregation of this park – men (and children) in the morning, and women (and children) in the evening – and limited timings, restricted opportunities for social interactions especially for adults.

Safe Environment

"I feel safe in Umbrella Park because it has a gate and a gatekeeper. So bad people are kept out."

"It (DDA Park) is safe from the cars that go by in the roads next to the park."

"I feel safe to cycle in the DDA park."



Figure 4. Umbrella Park, benches & lawn used for playing & relaxing.

Girls' fear of places in this Muslim community, as revealed during a focus group discussion, included boys, and ghosts. With increasing age, the independent mobility of Muslim girls was curbed. Till about age twelve, girls managed to negotiate outdoor mobility licenses with their families. But the culturally imposed taboos of no interaction with members of the opposite gender post puberty

created a fearful construction of gender in the minds of girls – boys were up to no good, and will harm girls in public spaces. Similarly lack of opportunities of knowing the other, and cultural constraints to do so,

aroused the curiosity of boys about girls. Incidents of boys roaming the streets, taking pictures of the opposite sex with hidden cell phone cameras, and jeering at them are part of the street gossip in the community today. Hence the fact that the Umbrella Park was a temporally gendered space with a confining boundary wall, and a gatekeeper keeping men and adolescent boys out in the evening, added to the perceived safety of the environment in the minds of girls.

The DDA Park, though it had a boundary wall all around, kept its unsupervised gates open throughout the day and night. This park abutted a major city-level traffic road, and the thick masonry walls cut out the view of the road from the park. This feature added to the perception of safety in the park. The streets outside in the Basti, though narrow were filled with two-wheelers and rickshaws, which often came close to children playing in the streets. I myself witnessed young children being run over by large speeding goats in the streets. Injuries from accidents were rampant even though there was restricted movement of cars and other high-speed vehicles within the Basti.

Attractive design features

"There are nice umbrellas over the gate, and colorful benches (in Umbrella Park). It (the park) is very pretty and clean."

"There is a path all around the park (DDA Park), grassy areas and clayey areas. Near the temple they have put flowers over the mesh. It looks very pretty now. There are different kinds of trees as well."

Nizamuddin West residents called it "C-Block Park", but Nizamuddin Basti children called it "Umbrella Park". Children's naming of the park was influenced by the most iconic visual element in the park – the red concrete umbrellas or *chhatris*

over the gate. We could differ in our liking for this piece of gate design, but this designed feature of the umbrella dominated the children's mental image of the park (see figure 5), as well as their use of language to describe the park. And this was not the only cognitive marker that the design of the park offered. The neat landscaping with linear pathways, lined with trimmed bushes arranged in layers of two different heights, and the landmark canopy trees at the nodal cross-section of the paths appeared in children's drawings. This tamed and manicured natural setting was both alien and novel for the child used to the disorderly, crowded, largely abiotic Basti environment.

Though the layout of the DDA Park on paper appeared more interesting, its design quality was undermined by its context. This park was located at the periphery of the crowded Basti, with three large pink colored community facilities in the middle of the park forming an edge to hide the Basti from the road. However, the DDA Park wrapped around these deceptive structures to mingle with the crowded and poorest precinct of Nizamuddin Basti – Nizam Nagar. On the northeastern edge the park ceased to lose its orderliness near Nizam Nagar where residents spilled out with their meals, clothes drying, and

cattle. Moreover, during the rainy seasons, homeless people pitched tents on this side of the park. In contrast, Umbrella Park located in the heart of a higher income neighborhood, and surrounded by paved pedestrian streets on three sides, a low-traffic street in the front, and respectable middle-income family homes all around, kept its gates locked to both vagrants, and neighborhood residents for most of the day.

Which place attributes matter more to children?

Of the seven place attributes noted above, three intertwined attributes seem to make Umbrella Park



Figure 9. A child's drawing of Umbrella Park as his most favorite place in the Basti.

a cared for place for most of the children interviewed in Nizamuddin Basti.

Analysis of the interview transcript:

- Nature in the context of relative scarcity of “nature”
- Clear evidence of care
- Affordance of play and socialization

The attribute “clear evidence of care” subsumes some of the other attributes such as attractive design features (created through acts of carefully considered design), protective rules for place (acts by which codes for care are embodied in the environment), and safe environment for users (a perceived attribute related to other evidences of care that notionally holds users from harm in a cared for place).

However, in order to understand the priorities of child friendly places for design and for maximizing environmental child friendliness by using existing urban elements for planning, a discussion on what matters most to children is needed. One way of answering this question is to analyze children’s perceptions of other nominated places, which do not have all three attributes.

Referring back to the chart that tabulates the children’s nominations of places that they cared for and respected (see chart 1), all eleven nominated places and place types under this category were found to be open spaces in the children’s local environment except one, India Gate park, which was a far-off city level park, and an attraction for most Delhi children. The third and fourth place nominations under environmental care were “open space near home” and “streets near home”. Though these same place types secured top nominations under other dimensions such as “control of territory” and “place-child exchange” respectively, they had lower priority under the dimension of environmental care. “Open space near home” often had incidental nature such as a few trees, a patch of grass, and a cluster of wild flowers. But what open spaces lacked were rules that told children how to behave in that setting. Moreover, open spaces were part of the profane public realm, and hence strewn with garbage and refuse. Children utilized the play affordances of these places, including constructing out of loose parts, in an unconstrained manner, but they still

queued up outside Umbrella Park, a strict rule-bound setting, at 5 PM. In fact, one boy dropped out of the Hope school evening supplementary tuition classes because the class timing coincided with the opening of Umbrella Park for evening use. What was missing from the wild nature, and affordance-laden open spaces near home were evidences of care. In the streets near home, nature is often non-existent, though affordances of play and socialization are plentiful.

Socially constructed nature of environmental care in Nizamuddin Basti

“The Umbrella Park is also very clean. It is cleaned every morning. Children don’t help to clean it, the caretaker does it.”

“This place (DDA Park) remains clean. We don’t clean it. There is no trash can inside, but the large garbage container is near one end of the park, though outside the park’s fence.”

Even though children talked about valuing the intrinsic qualities of these parks and respecting them as “beautiful” places that allowed them peace and quiet, to enjoy nature, to play and to socialize, almost all children said that they did not actively participate in caring for the place. What prevented affective concern from being translated into action to care for the environment? The reasons for inaction were many. In this particular community, children had no real sense of ownership in the two parks they nominated as special places that they respected and cared for. In fact they were very clearly the ‘other’ in these settings. Children had simply chosen, and used the properties owned by the city. The purpose of production of these city parks were, 1) in case of the DDA park, to hide a blighted slum behind a green zone, and thereby maintain social segregation between classes, and preserve the land values of adjacent higher-income residential, and institutional properties; and 2) in the case of Umbrella Park, to create a neighborhood park for the enjoyment of higher tax paying residents of Nizamuddin West. Appointed interest groups controlled these parks – RWA in Umbrella Park, and DDA in DDA Park. As

these places were under surveillance for appropriate behavior and use dictated by the interest groups controlling them, children had limited opportunities for manipulating them. Yet they were happy to obey rules and enjoy somewhat tamely these natural settings, which were very different from their everyday environment in the Basti. Rene Dubos’s (cited in Tanner, 1974, p.39) analysis of effects of inner city poor neighborhoods on children, “the wholesale and constant exposure of children to noise, ugliness and garbage in the street, thereby conditioning them to accept public squalor as the normal state of affairs” perhaps motivated these poor children to seek out islands of reprieve from the contested spaces of everyday.

Poor children from the Basti community in addition were viewed with suspicion in these settings, as evident in the gardener’s and caretaker’s opinions about their community, “these Nizamuddin people will never improve...people here are not like people in other parts of the city. They are like gypsies.” Gardeners and caretakers always kept a watchful eye on the activities of these children, and looked for opportunities to evict them from the parks.

Inaction toward environmental care as discussed earlier was also culturally rooted in considering the public place as profane in Indian society. Contrary to western ideals of civic sense, individual responsibility toward the public place whether through direct action or payment for civic facilities, was often a contested notion in India. When I asked children if they were personally involved in cleaning parks, or taking care of plants, most children laughed, probably at the cultural absurdity of the idea. This cultural apathy toward caring for what was not private property was further reinforced by the lack of environmental education in school curriculum. Most municipally run public schools in India (the majority of children of this study attended these schools) have deplorable infrastructure and very little open space. Children learned by rote in a didactic teaching environment where teacher absenteeism, beating, and lack of respect for the public schooling system are common sentiments.

All these factors – the nature of production of parks and open spaces in the city, children’s lack of control over accessible special places, children’s social status,

cultural apathy toward environmental care of publicly owned property and place, lack of EE in school curriculum – contributed to children’s inaction in demonstrating care for chosen places.

The reason why most state-owned and controlled public places in India have metal plaques, publishing rules of use near the entrance, is because the people in power distrusted care by civilians. Given the way open spaces and streets in low-income neighborhoods looked, government officials tended not to like the *look* of citizen care. The reasons for the state of public places looking filthy were many – the lack of even the most basic systems in low-income communities such as daily garbage collection, garbage disposal points near home – further promoted negative stereotypes against the poor as filthy and unable to care for their places. But the look of care in places where people were structurally empowered to keep the environment clean was different. An example of this can be found even in the midst of the littered Basti environment, in the Hope School. Here the poorest children in the community, who lived in some of the filthiest surroundings in the Basti, worked alongside teachers and staff of this NGO to make their school an exemplary well-cared for, clean and cheerful environment. The reason the Hope school was that way was because guidance and tools for cleaning were readily available.

In the context of the Umbrella Park, and DDA Park, I would like to argue that even though children were not directly included in demonstrating care through cleaning, looking after plants or directly manipulating the environment, children did in fact participate in caring for the environment by not disturbing, and by respecting and honoring the order of the existing. Restraining action to maintain and preserve what *is*, was just as much a manifestation of care as action that enhances the aesthetics of care. This form of care is probably a more acceptable one in the social, cultural, and political context of these children’s lives. Because children participated in caring for the parks by obeying the prescribed rules, and by limiting and often modifying their behavior and actions in these settings, children had access to Umbrella Park and DDA Park even though they were “dirty” underclass children. The custodians of these parks did not have

reason to throw them out of these public places, even though these places were meant for the enjoyment of better and higher tax paying populations as long as children respected and abided by the behavior codes encrypted in the place.

DISCUSSIONS

The findings of this study indicate that children’s concern and care for places were based on children’s feelings for and about the places, and children’s socially acceptable responsible environmental behavior. Children’s concern was not so much based on level of factual knowledge about the environment (not one child cited a reason that was based on factual understanding of the park ecology as their reason for liking the place). Though there is some evidence that show that both environmental knowledge and affect influence actual and verbal commitment to pro-environmental behavior, these influences operate additively rather than interactively (Borden & Schettino 1979). Others (Kellert 1985) have pointed out that concern and knowledge succeed each other in importance with maturing age. The child progresses from the egocentric, uninformed, and unfeeling attitudes towards the other, to emotional identification with the inanimate environment, and finally and hopefully to gradual acquisition of more sophisticated ecological knowledge (Chawla 1988). Kellert (1985: 33) has further suggested that educational efforts for 6 to 10 year olds need to focus on “the affective realm, mainly emphasizing emotional concern and sympathy for animals” and as most other scholars would agree with me, concern and sympathy for the natural world. This empirical literature shows the need for a strong emphasis on affective learning about the environment in younger years, progressing on to more factual knowledge with maturing age. The current study adds to that literature by showing that affective learning about the environment is just as important in middle childhood especially for children who had not been sensitized toward environmental issues earlier. This implies that even in middle childhood, objective, factual knowledge cannot substitute affect but is additive to affect. The path to making informed choices

about the environment, and participating in caring for the environment through action (which includes both enhancing and restraining strategies) may be through EE that lays a foundation for environmental concern and care in early and middle childhood, and consolidates this learning through increasing environmental knowledge over the years. The component of participation in environmental care through enhancing strategies (such as direct participation in decorating, and manipulating the environment itself) was missing from the lives of these children in Nizamuddin Basti, especially in caring for state-controlled public spaces. Though some of the inaction was due to structural reasons (nature of production of public place, legal ownership of place, and locus of control in these places), and some cultural constructions (the notion of public place itself in India), I suspect that lack of focus on environmental ethics and EE in school curriculum in public schools that most of these study participants attended (24 out of 32), as well as the socially constructed notion of care in this context, also played a role in children not getting involved in enhancing the aesthetics of cared for places.

Buntings and Cousins (1985) had found *pastoralism*, or an attraction for natural settings and open spaces, the most commonly endorsed environmental disposition in a large sample of 9 to 16 year olds. The current study shows that for children growing up in a dense inner-city neighborhood in a fast urbanizing city in a developing nation with very little nature in the immediate living environment, children were emotionally attracted to the well maintained designed parks in the periphery and outside of their neighborhood. These parks provided contact with nature, and were the places children respected and cared for the most in their everyday environment. Though children had access to several other unstructured open spaces with no rules and constraints on their behavior and action, and wilder nature, places that were more orderly and had clear visible signs of care and maintenance invoked respect and caring in children. This is not to suggest that unstructured open spaces had no significance in children’s lives. In fact some of these left over wild places near home were chosen for most of children’s daily play activities and were nominated

under the other dimensions of place friendship such as *place-child exchange*, and *control of place*. However, discussion about these other dimensions and these other kinds of open spaces is beyond the scope and objective of this paper.

CONCLUSIONS

The findings of this study indicate the importance of 1) an emotional focus in EE for middle childhood, 2) understanding the socially constructed nature of environmental care in a culture, in order to promote responsible environmental behavior in children, and for responsible environmental citizenship, and 3) designed places in communicating clear evidence of environmental care to invoke caring behavior in the child user.

I would like to conclude this paper by summarizing the descriptive analysis and by outlining the salient features of environmental care that have implications for planning and design as discovered through this study are featured below.

The communicative aspects of a caring environment that invoke feelings of care and respect in children growing up in poor inner city neighborhoods seems to play an important role.

- Some of these aspects are:
 - Environments communicated visual signs of care through well-kept gardens and lawns, and general cleanliness that was strictly enforced through rules by the appointed custodians of the environment.
 - Environments communicated visual signs of safety through protective design features such as gates, enclosing fences and boundary walls, and prescribed rules of entry.
 - Environments were considered attractive when they had clear paths, lawns, diversity of plants, features such as benches, low walls, platforms to aid social interaction and play.
 - Environments that were cared for were not completely closed off to children, but allowed access even if for a limited period each day.
 - Environments that were cared for were created for everyone and not just for poor communities.
 - Environments that were cared for provided an escape from the poverty-stricken, contested geog-

raphy of the everyday, and were not far off but close to home and walkable.

Poor children’s notion of caring environments was based on their feelings and emotions for places that were laden with non-verbal signs of care. Children chose settings that were not exclusively created for their class or community, but for the city, and better social classes. The choice of parks by underclass children makes obvious their rejection of the pitifully put together play spaces closer home as cared for places. The hidden agendas that programmed and designed these parks perhaps had not included extensive use and participation in care by poor communities and their children. In fact overt and covert strategies were fashioned to exclude the poor from these places. However, children were willing to change their normal behavior of littering, and aggressive play just to be part of these settings that aesthetically delighted them and satisfied other personal needs. In their own way, by restricting their normal play preferences, and inventing new, more setting-specific acceptable play and socialization, and by respecting and abiding by the rules to maintain the existing order, children cared for the two most coveted parks in their local area.

ACKNOWLEDGEMENTS

I am deeply thankful to Dr. Herb Childress for expanding my horizon of *care*. The fieldwork for this study was partly funded by a SARAI-Center for the Study of Developing Societies Independent Fellowship.

REFERENCES

Amarillo Museum of Art (2002). *Boundaries and Transformations: Outer and Inner*. Retrieved online at http://www.amarilloart.org/bt_outer-inner.html.

Banerjee, K., and Driskell, D. 2002. Tales from Truth Town. In L. Chawla (Ed.), *Growing Up in an Urbanising World*. London: Earthscan Publications.

Borden, R. J. and Schettino, A. P. 1979. Determinants of Environmentally Responsible Behavior. *Journal of Environmental Education* 10(4): 35–39.

Bowman, Ann O’M and Pagano M. A. 2004. *Terra Incognita: Vacant Land and Urban Strategies*. Wash- ington, DC: Georgetown University Press.

Bunting, T. E. & Cousins L. R. 1985. Environmental Dispositions among School-Age Children. *Environ- ment and Behavior* 17(6) 725–768.

Chatterjee, S. 2005. Children’s Friendship with Place: A Conceptual Inquiry. *Children, Youth and Environ- ments* 15(1), 1–26. Retrieved [9.24.2005] from http://cye.colorado.edu

Chawla, L. and Hart, R. 1981. The Development of Children’s Concern for the Environment. *Zeitschrift fur Umweltpolitik* 4: 271–294.

Chawla, L. 1986. The Ecology of Environmental Memory. *Children’s Environments Quarterly* 3(4): 34–42.

Chawla, L. 1988. “Children’s Concern for the Natural Environment. *Children’s Environments Quarterly* 5(3): 13–20.

Chawla, L. 1994. *In the First Country of Places: Nature, Poetry, and Childhood Memory*. Albany: State Univer- sity of New York Press.

Chawla, L. and Hart, R. 1995. The Roots of Environ- mental Concern. *The NAMTA Journal* 20(1): 148–157.

Chawla, L. 1998. Significant Life Experiences Revis- ited: A Review of Research on Sources of Environ- mental Sensitivity. *Journal of Environmental Education*. 29(3): 1–11

Doll, B. 1996. Children without Friends: Implications for Practice and Policy. *The School Psychology Review* 25(2): 165–183.

Hart, R. 1997. *Children’s Participation: The Theory and Practice of Involving Young Citizens in Community De- velopment and Environmental Care*. London: Earthscan.

Hinde, R.A. 1979. *Towards Understanding Relation- ships*. London and New York: Published in coopera- tion with European Association of Experimental Social Psychology by Academic Press.

Kellert, S. R. 1985. Attitudes towards Animals: Age- related Development among Children. *Journal of Environmental Education* 16(3): 29–39.

Kytta, M. 2003. *Children in Outdoor Contexts: Affor- dances and Independent Mobility in the Assessment of Environmental Child Friendliness*. Helsinki: Helsinki University of Technology.

Lynch, K. 1960. *The Image of the City*. Cambridge, Mass: MIT Press.

Matthews, M.H. 1992. *Making Sense of Place: Chil- dren’s Understanding of Large-Scale Environments*. Hemel Hempstead, Hertfordshire; Savage, MD: Har- vester Wheatsheaf; Barnes and Noble.

Moore, R. C. 1995. Children Gardening: First Steps towards a Sustainable Future. *Children’s Environments* 12(2): 66–83.

Palmer, J. A. 1993. Development of concern for the environment and formative experiences of educators. *Journal of Environmental Education* 24 (3): 26–30.

Peterson, N. J. and Hungerfor’ H. R. 1981. Develop- mental Variables Affecting Environmental Sensitivity in Professional Environmental Educators. In A. B.

Sacks, L.A. Iozzi, J.M. Schultz, & R. Wilke (Eds.), *Cur- rent Issues in Environmental Education and Environ- mental Studies*, Vol. 7, Columbus, OH: ERIC.

Piaget, J. 1960. *The Child’s Conception of the World*. Totowa, NJ: Littlefield, Adams. (Original French edi- tion 1926).

Proshansky, H.M., A.K. Fabian and Kaminoff, R. 1983. “Place Identity: Physical World Socialization of the Self.” *Journal of Environmental Psychology* 3: 57–83.

Tanner, T. 1980. Significant Life Experiences. *Journal of Environmental Education* 11(4): 20–24.

Tanner, T. 1974. *Ecology, Environment, and Education*. Lincoln, Nebraska: Professional Educators Publishers.

UNESCO. 1980. *Environmental education in the light of the Tbilisi conference*. Paris: Louise Chawla

Wals, Arjen E. J. 1994. “Nobody Planted It, It Just Grew! Young Adolescents’ Perceptions and Experi- ences of Nature in the Context of Urban Environ- mental Education.” *Children’s Environments* 11(3): 1–27.

SOCIAL CHANGE AND RESIDENTIAL ENVIRON- MENT: CHANGE OF ON- DOL (KOREAN HEATED FLOOR) AND DOMESTIC LIFE IN KOREA DURING THE 20TH CENTURY

Shin, Jung-hye (University of Wisconsin – Milwaukee, Milwaukee, WI)

ABSTRACT

A building, as a physical structure, is both the condition and the product of the social construct, therefore it is continuously evolving with socio-cul- tural changes of a given society. This paper explores the relationship between the building and society with thermal comfort on Korean heated floor as a focal point of the argument. Through this example, I trace the modernization path that took place over the last century in Korea and its impact on the domestic life of older adults. Employing the notion of cultural hybrids by Amos Rapoport (1983) and cultural mutation by Arce and Long (2000), I conceptualize the socio-cul- tural change that took place over the last century in Korea as the active localization of global knowledge and practice, especially in the area of housing tech- nology, in conjunction with larger societal move- ments. The hybrids of local and external cultures are not necessarily rational but can be simultaneous, coexistent, and sometimes conflicting mixture of elements actively manipulated by local actors situated in time and space. *Ondol*, which Koreans embrace as tradition, has survived a long time, but its historical manifestation was neither static nor transitory. Its identity and qualities have continuously evolved upon contact with external cultures. My theoretical

argument is based on previous field work with a group of Korean immigrants in Milwaukee and studies on popular media. A life history of the aged immigrants from Korea to North America in relation to residential places conveys to us that the social transition not only changed objective environment but also shaped the perception of places in different ways for the different people. More specifically, stories on thermal aspects of housing and commodification of thermal pleasure tell us how people appropriated and transformed Western ideas into different forms and qualities depending on their socio-economic classes, gender, and age (cohort effects). The ultimate goal of the study is to demon- strate the complex relationship between socio-cul- tural processes, in both the macro and micro levels, and their physical settings.

THEORETICAL BACKGROUND

In the 1950s and 60s Cold War period, social changes in developing countries were often described with the notion of replacement, that indigenous cul- tures in under-developed countries would be replaced by a more advanced culture (e.g., Lewis, 1954; Rostow, 1960). Critiques on modernization theories in the area of anthropology oppose this notion of replace- ment and further suggest socio-cultural change as a localization of modern knowledge and practices. Lo- calization comes through “the ways in which various social actors and groups process and act upon their experiences, re-constituting or transforming existing ‘localized’ situation, cultural boundaries and knowl- edge.” (Arce & Long, 2000, p.6)

Numerous studies on social change in the post- modern era describe this localization of modernity with terms such as pluralism, syncretism/hybridity, and mutation. Most of the theories of first genera- tion Environment-Behavior Studies (EBS) have also employed the notion of syncretism, wherein a por- tion of local culture is transformed through contact with external cultures while others remain relatively unchanged. Rapoport (1983) in particular, coined the term *culture core*, meaning the relatively unchanging portion of culture, and *peripheral elements*, meaning those easily changed. He argued that cultural changes

in developing countries are not simply replacements of Western culture but a synthesis between existing culture and external influences. Further, he argued that the core culture is relatively stable while peripheral elements are easily transformed upon contact with other cultures (Rapoport, 1983).

While the notions of hybrids and syncretism are extensively supported by various researchers in the field of EBS and many other social sciences, a more recent conceptualization of social change includes the capacity of culture to reproduce or transform itself in various ways. Arce and Long (2000) argue that the use of the terms hybrids and syncretism to characterize newly emerging lifestyles and socio-cultural change falls short because these are dynamically generated changes that involve the reassembly of the recursive properties of entities and redefinition of boundaries in a way that new social forms emerge out of existing ones (Arce & Long, 2000, p.17; see Tobin, 1992). They further question the notion of rational choice found in the concepts of hybridity and syncretism. Choices and combinations are, they argue, oftentimes irrational, contrasting, or even conflicting.

Usefulness of the newer model – culture as a living entity that has the capacity to reproduce and transform itself – is that: (1) it denies binary opposition of tradition and modernity, and therefore the presupposed concept of purity found in the notion of tradition; (2) it enables us to envisage the continuum of the past and the present, understand various ways of appropriating externalities (e.g., stripping off its original meanings of externalities and re-embodying localized meanings to them) and finally create a new reality.

Important to note here is the notion of *choice* by Rapoport (1969) or more recently, *cultural repertoires* by Long (2000). Long proposed the notion of cultural repertoires as the way cultural ingredients are used and recombined in social practices either consciously or unconsciously (Long, 2000, p.191). Similarly, Rapoport argued in his discussion on house form that “economic, geographical constraints, the biological, physical, and psychological makeup of man, and the laws of physics and structural knowledge (Rapoport, 1969, p. 48)” cannot alone determine house form, but they give limit to the number of choices. People still

have various options of house forms within this limit. Cultural repertoires, therefore, bear the notion of heterogeneity – generation and co-existence of multiple social forms within the same context or multiple solutions to similar problems. The endless combinations of cultural ingredients animate culture as a living entity that continuously transforms its identity, quality and meaning.

Changes in residential environment and the life of older adults in Korea, in this paper, are described based on this conceptualization – culture as a living entity. Although family relations and residential environment in Korea over the last century seems to be largely replaced with modern lifestyle, lingering cultural particularities are also present. They are not static entities but reproduce and transform their identities and qualities in various ways.

HISTORICAL BACKGROUND

Korean Domestic Life

Summarizing the whole history of Korean housing under the name of ‘traditional’ within a page or so would be absurd. As many anthropological studies in 20th century that have searched for *intact* and rather *isolated* traditional societies presupposed ‘purity, stability, and homogeneity’ of a given culture (Lawrence-Zuniga, 1997; Stewart, 1999). The discussion of traditional Korean housing without a specific time frame would gloss over the complex dynamics and heterogeneity found in Korean domestic life. When I refer to traditional Korean housing, I will limit my discussion to the period marked by the establishment of the Chosun dynasty, a predecessor of the Republic of Korea, in 15th century and the establishment of the Republic of Korea in 20th century. I will also limit my discussion to the upper class not only because there is generous evidence but it also reflects the ideal in a given society. Geographically, my discussion will focus on the central region of Korea.

A traditional Korean house is composed of 2 to 3 smaller buildings, each of them assigned to housewife, husband, and functional area. *An-chae* (inner quarter), which is assigned to mother-in-law, housewife, and her children, is usually located further

inside of the house. This building was mainly used for child rearing and housekeeping. On the other hand, *Sarang-chae* (outer quarter) for the husband and his guests is located in forefront, or next to of the residence. This area is sometimes shared by the head of the household and grown-up sons. Between these two separate areas, is a courtyard, serving various purposes and functions (see Figure 1 & 2).

While this arrangement remained relatively stable throughout this period, later influence of rigid Confucian ethics on aspects of family life – the segregation of men and women, the hierarchy of old and

Each building has three different floor types – Ondol floor, raised hard wood floor, and floor with earthen material. Individual rooms had ‘Ondol’, Korean heated floor. Between or around these rooms, there were raised wooden floors that are the same level as Ondol floor. The kitchen area as well as storage rooms had a floor of earthen material, significantly lower than both Ondol and hard wood floor. The source of heat for the Ondol floor was either in the kitchen or right outside the room.

Although the form and the location of traditional housing was strongly governed by Fung-sui, Taoism,

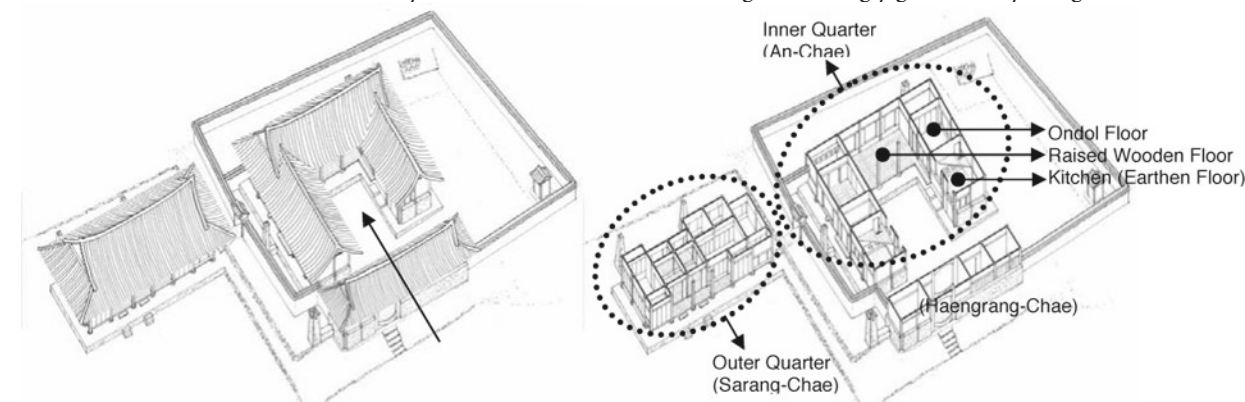


Figure 1. Isometric views of a Korean Traditional House with/without roof.



Figure 2. A view from courtyard to inner quarter.

young, and ancestor worship as the most important (Lee, 1989) – in 17th and 18th century has added more patriarchal components within housing. For example, Sarang-chae and An-chae have separated more strictly through limiting visual access, differentiation of the foundation height of each building, and differentiation of entrance shape used by husband and wife (Ju, 2000).

Ying-Yang School, and Naturalism, Confucianism also remained as a principle of the housing arrangement through its regulation on family relations (Ju, 2000).

Many of the traditional features of Korean housing have been under attack by the intellectual elite of Korean society at the turn of the 20th century as irrational and inefficient. At the time of this attack, Korea has

Note. Figure 1 is from Asian Historical Architecture (<http://www.orientalarchitecture.com>), by Tim Ciccone, 2003. © 2003 Tim Ciccone. Adapted with permission. Annotation by the current author.

been going through a series of turmoil beginning from forceful employment of open-door policy by Japan and other Western countries, invasion and subsequent colonization by Japan, and collapse of the Chosun dynasty. Open-door policy in particular, stimulated a social discourse on traditional values and life styles in every aspect of daily life (M.–S. Kim & Sim, 2002). As part of a culture movement, the social discourse in this period suggested a new way to achieve cultural change through: industrialization, provision of new education, abandonment of old habits of daily life including early marriage, excessive spending on funeral and ancestral memorial ceremony, inequality between male and female, patriarchy, slavery, caste system, extended family, and unconditional respect for older adults (M.–S. Kim & Sim, 2002).

Social discourse on housing and related lifestyle was a part of this larger conceptual movement. Western lifestyle became a model to be followed while traditional lifestyle and corresponding housing structure was discussed as something that has to be abandoned or hindered sound development (M.–S. Kim & Sim, 2002). Specific features such as building arrangement (multiple buildings within single residence) were criticized as being inefficient use of space. Kitchens were viewed as a reflection of lower status of women in Korean society (M.–S. Kim & Sim, 2002). Although this discourse in the 1910s and 1920s did not have wide impact on society overall, their far-reaching effect appeared later in the 1940s, 1950s, and 60s when the Republic of Korea gained independence and rebuilt its own society based on strong nationalism (M.–S. Kim & Sim, 2002). Subsequent introduction of high-rise

apartments in 1950s as a national emblem of development and wide acceptance of them as a major category of housing (around 47.73% of overall housing stock in 2000) in later 20th century and into 21st century (Park, 2005) have abandoned virtually all spatial arrangement found in traditional Korean housing. A few features survived however, including the influence of Fung-sui (e.g. preference of south-facing house), spatial arrangement of rooms according to users rather than functionality or privacy¹, strong preference for houses that allow cross ventilation, and most importantly the warm floor – *Ondol*.

‘Ondol’ literally means ‘warm chimney.’ The traditional Ondol structure is composed of: (1) a fireplace outside the room which is the heat source for both space heating and cooking; (2) a passage for warm air and smoke underneath the floor, which is mainly made of stone or earth; (3) several floor layers made of stones, a coating, and floor paper; and (4) a chimney leading gases and smoke outside. In this system, the

whole floor system, in a sense, can be described as an extended chimney system (see Figure 3).

This traditional form of Ondol lasted until 1960s and 1970s, although the major type of fuel was switched from wood to anthracite briquette around 1950s. After modernization of Korean society and following the import

of technologies from the West around in 1970s, the medium for heat transfer was replaced from hot air to hot water and water pipes were used instead of stones and air passages under the floor (Yeo et al., 2003). Currently, more than 90% of housing stock in Korea have Ondol system (Olesen, 2002). The application of Ondol is expanding to living rooms and kitchens

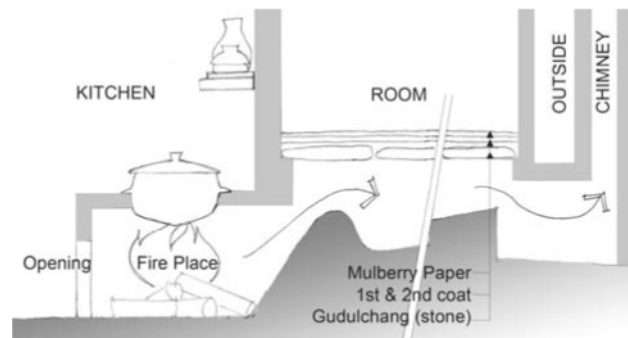


Figure 2. Structure of Ondol,
section across a kitchen and an Ondol room

¹ The arrangement of spaces in Western housing may give the feeling of transition from public, semi-private, to private as one proceeds from entrance, family room, to bedroom. The majority of Korean housing shows a rather different arrangement: all of the bedrooms for each of family members as well as kitchen surround living and dining room. As a result, it is usual to see a couple of bedrooms from the entrance area before entry to the living room area (my observation).

where heated floor was atypical until 1980s (Kang). Ondol system also started to be employed in neighboring China. 20% of newly developing apartment projects in China have known to employ this system since 2000 (H.–s. Kim, 2005).

LIFE ON ONDOL

Ondol and Its Multiple Meanings

In 2004, I interviewed 6 Korean immigrants who were over 60 and asked their past housing history and their experiences in their former homes focusing on the thermal comfort aspects. I also conducted a content analysis of 11 popular writings about Ondol from the World Wide Web. Unlike my original intention in beginning this study – simple comparison between radiant floor and western style heating method – the informants’ stories unfolded with amazing detail filled with life-long struggles of survival, raising children, familial bonds, and achievements. I identified six major themes associated with life on Ondol – thermal contrast, intimate relations, incubation, rootedness, labor, and modernization. While the interview questions were posed regardless of the type of heated floor (i.e. traditional chimney system with fire wood, chimney system with anthracite briquette, boiler system with anthracite briquette, boiler system with oil, boiler system with natural gas), most of memories associated with heated floor were from traditional chimney system. Further analysis revealed that different people extracted different meanings from their memory about Ondol. Complex interaction among development of floor systems, the family role each informant held, and characteristics of the era in which each informant lived were all interwoven together.

Thermal contrast

The interviewees constantly mentioned contrast between the cold outdoor and warm indoor, contrast between cold indoor air and warm floor, and contrast between colder side of the floor and warmer side of the floor. Whenever they described how warm that floor was, the scene contained harsh winter cold and snow. In the popular writings on the internet, authors

sometimes compared this cold weather to the merciless contemporary world where severe competition and unemployment is prevalent, and the warmth of the floor creating a refuge to return home to.

The heated floor also had the meaning of waiting. Almost all informants mentioned that Ondol was a place where they waited for their husbands, fathers, and their brothers who were often late. They buried rice bowls under the layer of thick blanket until their late family members come in from cold weather and then served them. The literature often described a vivid image of contrast between warm rice or warm floor and the winter storm.

The informants and the writers of literature often recalled thermal contrast between cold indoor air and warm floor. Lower levels of insulation back in 1940s and 50s lead people to layer thick blanket on the warm side of the floor to keep the floor warm. Whenever they recalled Ondol the scene contained thick blankets and families who gathered with their feet under the blanket. The coldness they felt with their upper body reinforced the contrasting warmth they felt under the blanket.

Thermal contrast between warmer side of the floor and colder side of the floor was often mentioned in both the literature and interviews. Both sources more often used a specific word for the warmer side of the floor – ‘Arae-Mock’ – rather than Ondol which refers to the whole floor system. The warm spot was often referred to as the best spot in the house therefore reserved for privileged people such as fathers, mother-in-law, newborns and sometimes people with illness.

Intimate relations

Intimate relations found in Ondol is somehow related with thermal contrast in a sense that the warm spot created by strong thermal contrast gathered all the family members in one place and made them stay there. The spot was the place where parenthood was expressed. Often times the spot itself was compared to mother or grandmother by various writers of the literature, both men and women. The spot worked as strong family foci. The intimate relations with parents, with brothers, and with sisters were formed on the spot. Hospitality is also expressed on the spot. The

warm spot is often served for the family guests, poor people, and people with illness.

Incubation

Incubation was less significant but persistent theme. The right degree of temperature on the warm spot provided a good place for food fermentation, human birth and growth, and cure for the ill. A series of post-partum care centers borrowed their names from the warm spot, Arae-mock, and used it for their advertisement. Unique therapeutic heating rooms (Jimjil-bang) in Korea using conduction heat transfer mode, which was highly commercialized around 1995, also borrowed Ondol concept for their advertisement. The interviewees indicated that while it is not crucial to have it all the time, they miss the warm floor whenever they feel feeble or ill.

Rootedness

Connectedness to nature, nostalgia, and feeling emptiness without it is found to be associated with warm floor. Compared to other themes, this theme was the least frequently mentioned. The earth and fire, main components of the traditional heated floor, sometimes connected people with Mother Nature. Connectedness, along with childhood memory, was recalled and missed by people in the literature but to a lesser degree by elderly people interviewed. One of the interviewee said that she felt strong emptiness without a heated floor after she moved to the States. This feeling of emptiness is also expressed in the literature.

Labor

Intense labor and maintenance is found to be one of the associated themes with Ondol. This theme distinguishes older informants from younger informants and writers of literature. Difficulty in maintaining the temperature and hard labor necessary to keep the fire alive with the traditional heated floor was pointed out by 5 out of 6 informants. For the people in their late 70s and early 80s, this hard labor is remembered as rather painful and sometimes intertwined with their memory of lifelong struggle to sustain their life and their family through colonization, war and economic development of Korea. For the people in their early 60s,

the effort to keep the fire alive and maintain consistent floor temperature was remembered with a slight degree of inconvenience and sometimes romanticized as childhood memory. Two pieces of literature mentioned this theme as well, but it was highly romanticized in connection to the memory of their mothers.

Development and modernization

Development and modernization of Korean society is reflected in the development of the heated floor. Although the Korean floor system is about 1000 years old, most technological development occurred in informants' lifetime. The elderly often recalled how fast Korean society developed and modernized, as well as how comfortable and convenient it is to live in modern society. A couple of informants further described the generational gap that this development created between them and their children. A single piece of literature briefly mentioned this theme as well. In the writing, one of the author strongly advocated the life style associated with Ondol system as tradition that has to be kept no matter how much modernization progresses in Korea.

DIFFERENT EXPERIENCES, DIFFERENT MEANINGS

The common themes found through the study do not necessarily imply that the experiences of various users were uniform. As I partially described in each common theme, the meanings attached to Ondol were different depending on the maintenance processes for different types of floor system and who attended the system.

The chimney systems with firewood or hay required hard labor to keep the fire alive. The house structure associated with chimney system provided a kitchen where cooking and cleaning is not easy compared to contemporary kitchen. Interviews for those who actively used and maintained this old system in their early to mid motherhood associated with floor system were more labor oriented memories. Intense labor to keep the fire alive, longer time for food preparation is pointed out, and often times, their desperate struggle to feed and sustain their family life through poverty

and wartime was vividly described. For them the 'warm spot' on the floor was the place for their children, husband, and their elderly parents, but not for themselves. Their own memories were confined into kitchen area trying to serve those people on the warm spot. Some of them converted this painful memory into the joy of child rearing while others recalled it as something that constrained women's life within the kitchen. For them, traditional Ondol system was a symbol of patriarchy and unbearable relationship with their mothers-in-law. Conversely, modernization of society and new floor systems were something that freed women's life. Although they, too, experienced these blessings, they experienced it as mothers-in-law who would have been a primary beneficiary of traditional Ondol system. Therefore the beneficiary of the modern house and its floor system was their children's generation. This sentiment of 'trapped cohort' in the use of Ondol system is also manifested when they discussed their position as elders within their family. "I will live independently until I fall gravely ill. We can't expect the same care giving relations from our children as we did with our in-laws." (From the field note, my translation). They portrayed themselves as mothers who sacrificed their life to both younger and older generations and stood on the giving end of their relationship to the next generation.

On the other hand, for the interviewee who spent her motherhood with traditional Ondol system, but with higher economic status with house servants, the Ondol was more for family gatherings and hospitality expressions although they were aware of the difficulty to maintain the floor system. They remembered this difficulty rather as nostalgia. Sometimes family wealth is expressed as having a huge pile of firewood and the housemaid to maintain the system.

The informants in their early 60s remembered the Ondol floor as family foci and place for guests. Because the traditional floor system – chimney system with firewood or hay – mostly disappeared before they reached motherhood, the hard labor of their mothers or housemaid remained rather nostalgic and sometimes symbolic of a mother's love. Various memories including playing, eating, and sleeping were described and often times were strongly connected to the memory of their

mothers. In this sense, they remain the recipients in their relationship to the previous generation.

The meanings of traditional heated floor expressed in literature show even further departure from the reality of hard maintenance. The literature found through web search, which was mostly written by younger generations, romanticized the labor associated with maintenance as love of mothers or as link to Mother Nature. Commercial advertisement used the concept of traditional floor system to remind people of traditional values and healthy life.

Interesting to note here is that the most of the memories described by both interviewees and literature were concentrated on the traditional Ondol system. All they could recall, when I asked about the life on newer Ondol system, was convenience. The lifestyle formed by strong thermal contrast and limited availability of the warm spot on traditional heated floor seem to have created more family affairs to remember. Eating, sleeping and all kinds of family gatherings happened on the warm spot partly because of the bodily sensation of warmth and partly because the coldness of spaces other than warm spot. While limited availability of warmth might have created inconvenience living in other spaces, it also created strong reasons for the families to be together. Whereas, the enhanced insulation of the house and relatively uniform floor temperature throughout the space in modern Korean housing, along with other social and cultural factors (e.g., introduction of TV and PCs), enabled each family member to enjoy her/his personal life in his/her own private space, therefore reducing the frequency of family gatherings.

THERMAL CONDUCTION, AN ENDURING QUALITY

Ondol is usually classified as radiant heating floor. Our body loses 80% of body heat produced through metabolism. While we lose our body heat through all three modes of heat transfer – conduction, convection, and radiation – 50% of heat loss occurs through radiation. Therefore, radiation is by far the most important body heat loss mechanism in terms of the quantity of body heat transferred (Stein & Reynolds,

1999). The effectiveness of radiant floor system has been discussed in conjunction with this fact (Shoe-maker, 1948; Stein & Reynolds, 1999).

However, conduction, rather than radiation, is by far the most effective heat transfer mode once it occurs (Stein & Reynolds, 1999). Bodily contact with warmer objects in large quantity seldom occurs in daily life, yet lifestyle created on Ondol floor encouraged this bodily contact within a large area. Interestingly, the study showed that the memory of life experiences on Ondol mainly came from bodily touch with warm floor – conduction heat transfer. Difficulties applying international thermal comfort standards in Korean residential situations are large conduction area, frequent change of contact area depending on postures, and relatively strong role of radiation within the room. Major thermal comfort studies on residential settings in Korea, therefore discredit international standards, modifying equations and placing more weight on radiant temperatures.

In 2003, a year prior to the study of Ondol, I interviewed managers of four different nursing homes in Korea through telephone interviews and exchange of documents. All those facilities were operated by Catholic orders or charity for people with no family to support themselves. Though their facilities were starkly institutional with many hospital-like features, several key features were found: Ondol, floor materials with high density (therefore easy to clean and effective heat conduction), drainage on bathroom floor, and separate designated area for taking off shoes.

Certainly, there are not many people, if any, who layer materials with low conduction rate such as carpet on top of Ondol floor. Floor materials made of papers and transparent coating, or sheet vinyl, laminate, and linoleum flooring more recently, on top of concrete or cement floor is more typical for better conduction of heat and easier cleaning with a floor mop. Those materials with high density tend to be cooler in summer due to high thermal capacity and high conductivity. Shoes are never acceptable beyond the entrance. Bare feet or a single layer of socks is typical. Bare feet work better for both heat conduction and keeping the inside free from street dust. Drainage on the bathroom floor makes it easy to wash floor mops. The combination

of a hard floor free of dust, barefeet, and warmth has survived through fundamental social change and residential development in Korea.

While those enduring features – Ondol and its relevant features – link us back to the notion of *culture core* (Rapoport, 1983), more recent phenomena such as expansion of Ondol floor to the entire Korean house and Chinese buildings, and finally commodification of certain thermal qualities go beyond the notion of cultural hybridity, animating itself as something capable of transforming its identity, quality, and meaning.

COMMODIFICATION OF THERMAL PLEASURE

A well-known thermal comfort researcher, Olesen (2002) extensively documented why heated flooring is better in residential settings in terms of its functionality and efficiency. One of the pros of the heated floor that he pointed out was that the air temperature from floor to ceiling is more uniform than an air heating system where temperature at the ceiling level tends to be higher than one at ankle level, which results in ‘cold feet’ (Olesen, 2002).

Obviously, uniform temperature at an ideal setting in which people do not sense warmth or coldness (i.e., thermal neutrality) lets people forget about discomfort and concentrate on what they do. Marked with the notion of convenience, this neutrality has been the goal of international thermal comfort standards (ASHRAE, 2004). Thermal pleasure, on the other hand, is a different trait that follows strong thermal contrast. Theoretically, thermal comfort researchers have conceptualized the human body as two different compartments composed of deep body and skin (ASHRAE, 1997). For the human body to stay within a comfortable range, both skin temperature and deep body temperature should stay within a narrow range of temperature, usually within a couple of degrees. When the deep body temperature is outside the comfort range, either too cold or too warm, contact with opposite extreme temperatures through the skin lets people feel pleasant sensation rather than just reaching neutral comfort (Hensel, 1981). Though

contemporary Ondol floor has most of features of traditional Ondol floor, the increased insulation level and uniform temperature throughout the floor reduced thermal contrast found in traditional Ondol floor, conforming to the idea of thermal neutrality and uniformity found in international thermal comfort standards. Gone with the reduced thermal contrast is thermal pleasure along with family affairs within the warm spot.

From the mid 90s, possibly even before that, new types of products that imitate the thermal pleasure in traditional Ondol have been pouring into the Korean market. Backed by the health movement (mainly manipulated by mass media) and theories in Korean medicine (mainly from Chinese medicine stressing balance of Ying and Yang), those items quickly gained popularity in the market. Examples include stone beds with temperature control, mats stuffed with exotic materials that are supposed to emit far-infrared radiation, the flourishing business of therapeutic heating room (Jimjil-bang), and vacation houses modeled on traditional houses with Ondol. Therapeutic heating rooms in particular, became extremely popular in late 90s for gatherings, therapeutic activities, and leisure, leading the majority of public baths to close their businesses (Ha, 2003). In a return to nature, some people managed to build traditional housing³ in deep mountains of rural areas, reconstructing traditional lifestyle, while renting part of their buildings to boarders. Thermal pleasure, which inevitably accompanies thermal discomfort and labor but occasionally provide pleasant bodily sensation, moved its realm from the residential to commercial sector, creating its own unique culture.

CONCLUSION

I have suggested in this text a few culture cores of Korea which have survived and flourished during rapid social change in the past century. I have also described how people constructed meanings and values around those cultural assets and how they trans-

formed their identity, quality, and meanings amongst the influx of the Western culture.

The notion of cultural repertoires and its endless combination call our attention to various social actors and groups within the society and how those actors interpret, process, and implement new knowledge through selective appropriation, denial, and transformation. Why are some aspects of the new culture and knowledge welcomed in certain local situations while it is abandoned in other situations (e.g., the negation of ‘new cultural movement’ in 1910s which was heralded by intellectuals when Korea is under Japanese rule vs. acceptance of similar features in 1960s under strong nationalism)? Why are some contrasting values accepted and able to co-exist without conflict (e.g., co-existence of Western lifestyle and radiant heat floor, or coexistence of the notion of *Ying/Yang*, the basis for the idea of therapeutic heating room, and Western medicine in Korea)? What kind of standards do people employ when they accept or deny new knowledge (e.g., practicality or metaphysical standard)? Certainly, the battlefield of our daily life renders a much more complex situation wherein people sift through and collect numerous values and symbols ultimately creating their own culture. Conventional approaches to the search for the universal solutions either to aging or to physical environment have limited ability to explain this process. Only through detailed analysis of the process of appropriation – how people accept, deny, or modify existing as well as external cultural features and how people construct the reason for these actions – can we understand the living ensemble of culture on a deeper level.

AUTHOR’S NOTE

This research was conducted under the direction of Gerald Weisman and Sherry Ahrentzen in partial fulfillment for a doctoral degree in architecture at the University of Wisconsin – Milwaukee. I wish to thank to Gerald Weisman and Sherry Ahrentzen for their insightful contributions to this article. Correspondence

² There are still many traditional Korean housing as usual residential buildings in both urban and rural areas. While these residential buildings have incorporated newer materials and technologies, vacation houses rather strictly use (or claim to use) natural materials and build according to traditional methods.

concerning this article should be addressed to Jung-hye Shin, Department of Architecture, University of Wisconsin, Milwaukee, Wisconsin 53201–0413. Email: jshin@uwm.edu

REFERENCES

Arce, A., & Long, N. (2000). Reconfiguring modernity and development from an anthropological perspective. In A. Arce & N. Long (Eds.), *Anthropology, development and modernities* (pp. 1–31). London and New York: Routledge.

ASHRAE. (1997). *ASHRAE fundamentals handbook*. Atlanta, GA: American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc.

ASHRAE. (2004). *ASHRAE standard: Thermal environmental conditions for human occupancy*. Atlanta, GA: American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc.

Ha, I.–s. (2003, October 23, 2003). [keumjuoe ranking top 5] jjimjilbangeseo hago sipeunil. Retrieved 2005, July 25, from [http://www.donga.com/fbin/moeum?n=dstroy\\$j_509&a=v&l=8&id=200310230130](http://www.donga.com/fbin/moeum?n=dstroy$j_509&a=v&l=8&id=200310230130)

Hensel, H. (1981). *Thermoreception and temperature regulation*. New York: Academic Press.

Ju, N.–c. (2000). *History of Korean architecture (hanguk geonchooksa)*. Seoul, Korea: Korea University Press.

Kang, I.–h. Aparte ondol? Retrieved July 29, 2005, from <http://arch.hannam.ac.kr/~kih/ondol.htm>

Kim, H.–s. (2005). 'hankuk ondol nanbang' jungkuke keupsok junpa, sinkyu aprt 20% dae chaetaek. Retrieved July 29, 2005, from <http://economy.hankooki.com/lpage/industry/200505/e2005051817082548030.htm>

Kim, M.–S., & Sim, W.–G. (2002). A study of the discourses about 'housing improvement' on [kaebyeok] in the early 1920. *The Architectural Institute of Korea Periodical*, 18(10), 115–122.

Lawrence-Zuniga, D. L. (1997). Studying culture and history in exotic places and at home. In G. T. Moore & R. W. Marans (Eds.), *Advances in environment, behavior, and design* (Vol. 4). New York: Plenum Press.

Lee, S. H. (1989). Siting and general organization of traditional Korean settlements. In J.–P. Bourdier & N. AlSayyad (Eds.), *Dwellings, settlements, and tradition* (pp. 295–316). Lanhan, ME, London, and Berkeley, CA: University Press of America.

Lewis, W. A. (1954). Economic development with unlimited supplies of labour. *Manchester School*, 22, 139–191.

Long, N. (2000). Exploring local/global transformations. In A. Arce & N. Long (Eds.), *Anthropology, development, and modernities: Exploring discourses, counter-tendencies and violence* (1st ed., pp. 184–201). London and New York: Routledge.

Olesen, B. W. (2002). Radiant floor heating in theory and practice. *ASHRAE Journal*, July 2002, 19–24.

Park, C.–S. (2005). Transformation of images on apartment depicted in Korean popular novels. *The Architectural Institute of Korea Periodical*, 21(1), 189–200.

Rapoport, A. (1969). *House form and culture*. Upper Saddle River, NJ.: Prentice Hall.

Rapoport, A. (1983). Development, culture change, and supportive design. *Habitat International*, 7, 249–268.

Rostow, W. W. (1960). *The stages of economic growth, a non-communist manifesto*. Cambridge: Cambridge University Press.

Shoemaker, R. W. (1948). *Radiant heating* (1st ed.). New York: McGraw-Hill.

Stein, B., & Reynolds, J. S. (1999). *Mechanical and electrical equipment for buildings* (9th ed.). New York: John Wiley & Sons.

Stewart, C. (1999). Syncretism and its synonyms: Reflections on cultural mixture. *Diacritics*, 29(3), 41–62.

Tobin, J. J. (Ed.). (1992). *Re-made in Japan: Everyday life and consumer taste in a changing society*. New Haven: Yale University Press.

Yeo, M.–S., Yang, I.–H., & Kim, K.–W. (2003). Historical changes and recent energy saving potential of residential heating in Korea. *Energy and Buildings*, 35(7), 715–727.

DENSITY, FEAR, AND TERRORISM: HOW 9/11 AFFECTED PEOPLE’S DESIRE TO LIVE IN AN URBAN AREA IN FRANKLIN COUNTY, OHIO

Mantero, Vicente¹ (*The Ohio State University, Columbus, OH*)

ABSTRACT

The terrorist attacks of September 11, 2001 (9/11) have had a great impact on the daily lives of people living in the United States. Events that were long thought of as occurring only in far distant areas were now occurring in the United States, and many people’s perception of vulnerability to terrorism shifted from a detached interest to a tangible fear. Using 2004 survey data from homeowners in Franklin County, Ohio, this paper describes how this perceived fear of terrorism manifests itself in different parts of the population. This study identifies those populations that may be more susceptible to a heightened fear of terrorism, explains why they may be more vulnerable, studies the relationship between density and fear of terrorism, identifies policies and strategies that may heighten fear of terrorism, and proposes future actions that can mitigate irrational fear. This study illustrates that certain populations, such as those households with children under eighteen years old, those with lower income, and those with less education, have increased levels of fear regarding a possible terrorist attack. Additionally, the media play a significant role in increasing levels of fear about a future terrorist attack. Respondents revealed that they have become less confident in the government’s ability to protect them against a terrorist attack. Finally, the results suggest that the framing of terrorism as a criminal act may actually increase the

levels of anxiety of those populations especially vulnerable to crime, such as the elderly, previous victims of crime, and those living in high-crime areas.

INTRODUCTION AND BACKGROUND

The terrorist attacks of September 11, 2001 (9/11) have had a great impact on the daily lives of people living in the United States. This impact has taken many tangible forms, such as increased security at airports, public buildings, and other security-sensitive areas. The impact was heightened by the intense media coverage of the event, especially immediately after the attacks. Other impacts, though, have been less tangible. For many Americans, exposure to terrorism prior to 9/11 was limited to information about events occurring outside the United States. The attacks of 9/11 brought this danger close to home. Events that were long thought of as occurring only in far distant areas were now occurring in the United States, and many people’s perception of vulnerability to terrorism shifted from a detached interest to a tangible fear. Additionally, using 2004 survey data from Franklin County, Ohio, this paper describes how this perceived fear of terrorism manifests itself in different parts of the population. This study identifies those populations that may be more susceptible to a heightened fear of terrorism, explains why they may be more vulnerable, studies the relationship between density and fear of terrorism, identifies policies and strategies that may heighten fear of terrorism, and proposes future actions that can mitigate irrational fear.

Terrorism and Disasters

How is terrorism placed within the wider discussion on disasters? As Alexander (2004: 165) noted, “Disaster is a multi-farious concept that seems to defy a precise definition.” A traumatic event can stun, terrify, and disrupt communities. A traumatic event is defined by its capacity to evoke terror, fear, helplessness, or horror in the face of a threat to life or serious injury (American Psychiatric Association, 1994, as cited in Fullerton, Ursano, Norwood, & Holloway, 2003). Researchers have noted similarities in how people react to terrorism, natural disaster, and technological

catastrophes. As Leon (2004: 4) noted, “[t]he psychosocial sequelae can be intense and of long duration in the aftermath of natural and technological disasters, as well as terrorist attacks.” Where does terrorism fit into the continuum of the disaster field? Alexander (2004: 166) notes:

Over the years, natural disaster has ceased to be interpreted as the manifestation of imponderable, unmanageable “Acts of God,” and has come to be viewed in terms of failure to prepare for and protect against damaging events. Thus, “natural disaster” has acquired greater meaning in terms of human failings than it had when fate was considered to be the prime mover: the “natural” is now merely a convenience term. Here begins a process of convergence with terrorism. The latter – defined as the calculated use of intimidation, coercion, direct violent action or the engenderment of fear to attain goals that are political, religious, or ideological in nature – is the end member of a spectrum that encompasses a range of ills from “man’s inhumanity to man” to negligence in planning, and to the vulnerability of settlements, organizations, and people.

This loss of certainty and increase in vulnerability is echoed by Fullerton et al. (2003: 5), noting that “terrorism often can be distinguished from other natural and human-made disasters by the characteristic of extensive fear, loss of confidence in institutions, unpredictably and pervasive experience of loss of safety.” Alexander (2003) adds that a main difference between terrorism and other disasters is that terrorism offers too many potential scenarios and encourages a return from civil protection, the modern form of disaster management, to the less evolved forms of civil defense, including a renewed emphasis on “command and control.” This emphasis on command and control and secrecy go against the current information and communications technology revolution, which is encouraging openness and tending to flatten the chain of command in emergency management (Alexander 2003: 168).

Terrorism, Urbanism, and Density

Many studies, published since 9/11, have attempted to document an increased fear of terrorism. Has this extensive fear, and possible loss in the confidence of institutions due to terrorism, had any effect on the decentralization of the city? Some debate exists whether the terrorist attacks of 9/11 have made urban areas more or less attractive as places. Dittmar and Campbell (2002) argue that the terrorist attacks have made urban areas more attractive, revealing the economic insecurity of relying on foreign oil. They argue that exploring transportation alternatives to our auto-reliant system will lead people back to cities. Additionally, the authors argue that people are seeking a stronger sense of community after the terrorist attacks, rather than dispersion. This theory is supported by a 2002 Brookings Institution report pointing out that polls taken in both New York and Washington after 9/11 found evidence of increasing attachment to each city, finding that “[t]he growth and development of cities will continue to be shaped by complex economic, social and technological forces, among which terrorism plays a very minor role” (p. 22). This struggle between the attachment to the city and community, and fear of terrorism, was found by Low, Taplin, and Lamb (2005: 677) in their *Ethnographic Field Study of the Community Impact of 9/11 in Battery Park, New York*. They reported that 16 of the 65 residents interviewed said that the primary impact of 9/11 was a heightened sense of fear, seven felt a lingering sense of sadness and grief, and four reported an increase in anger. Yet, at the same time, 16 of the 65 report a heightened sense of community and more hugging and emotional contact than before 9/11.

Swanstrom (2002) believes that expectations of the demise of the city are unrealistic based on economic forces, including the fact that job density increases productivity. Swanstrom also argues that urban areas are needed because they promote tolerance of differences through their higher levels of diversity. Additionally, Glaeser and Shapiro (2002) argue that 9/11 probably will not have detrimental impacts on cities, basing their theory partly on examples of previous wars and urban terrorism, which did not trigger either wholesale commercial or population deconcentration.

Pantelic, Srdanovic, and Greene (2005:10) argue that the dispersion and deconcentration of the urban form has made the city more vulnerable to disasters:

The changing social geography of cities resulting from the changing roles of in the new globalized economy has widened the gap between the wealthy and the poor in economic, social and in spatial terms. This spatial fragmentation and polarization of the city is causing serious breakdowns in the management of the urban system.... [T]he city itself has become an agent of disaster vulnerability.... In order to contain the growing risks in the urban environment, the direction of urban development needs to be reassessed and policies and programs created to address the growing vulnerability crisis.

The opposing view is represented by Johnson and Kasarda (2003). They believe that the 9/11 aftermath restricted people and the flow of products in large cities, raised security and insurance costs of downtown locations, and heightened employees’ perceived vulnerability when working in or near large central city properties (e.g., high-rises). They feel that these factors will combine to accelerate deconcentration, a pattern characterizing the US urban system for over a half century (Hayden, 2003). Some have seen the terrorist attacks as a justification for more suburban sprawl, believing that lower density would lower the likelihood of an attack on a specific target (O’Toole, 2001). Even historian Stephen Ambrose, in a Wall Street Journal op-ed piece, advised:

Don’t bunch up. In this age of electronic revolution...it is no longer necessary to pack so many people and office into such small space as lower Manhattan. They can be scattered in neighboring regions and states, where they can work just as efficiently and in far more security. (2001, p. A24)

The deconcentration of the urban area in response to disaster or war was accelerated by the 1956 Inter-

state Highway and Defense Act, when President Eisenhower stated, “in case of an atomic attack on our key cities, the road net must permit quick evacuation of target areas” (Jackson, 1985: 249). Comparisons have been made between the current decentralization of the American city due to the threat of terrorism and a similar demand during the Cold War (Swanstrom, 2002; Farish, 2003). Clarke, Pagano, Gaile, Logan, Hamnett, Torres, and Alma H. Young (2002) argue that it is likely that both dispersion and concentration will occur simultaneously, with more fortified enclaves, characteristic of new concentration. This idea of fortification connects to a discussion regarding what effect the fear of a terrorist attacks has had on people’s general levels of anxiety and fear.

Fear of Terrorism, Media Exposure, and Children

As a result of the terrorist attacks of 9/11, financial markets dropped, consumer spending declined, air travel fell, and public opinion toward government shifted (Lerner, Gonzalez, Small & Fischhoff, 2003). These actions reflected intense emotion, and the attacks created anger, fear, sadness, and anxiety. Researchers have attempted to study how disaster, terrorism, and political violence have affected perceived levels of risk and anxiety, and whether there are any variations in the population regarding fear of a terrorist attack. Goenjian and Steinberg (2000) reported higher incidences of stress and anxiety due to disasters and political violence, and Sunstein (2003) found that people are far more concerned about the risks of terrorism than about statistically larger risks that they confront in ordinary life.

One of the key indicators for increased fear and anxiety has been the level of media coverage. Many studies have found that a large amount of media coverage of a terrorist event increases people’s fear (e.g. Boscarino, Figley, & Adams, 2003; Rothe & Muzzatti, 2004; Schuster et al., 2001; and Slone, 2000), with the possible explanation that ongoing media coverage may serve as a traumatic reminder, resulting in persistent symptoms (Schuster et al., 2001, and Slone, 2000).

Haridakis and Rubin (2005) found that a person’s concern for safety also predicted fear of victimization, and that television’s depictions of terrorist activity heightened some respondents’ concern for their safety. Schlenger

et al. (2002) reported that indirect exposure to the 9/11 disaster via the number of hours of television coverage watched per day on and after 9/11 was significantly associated with probable post-traumatic stress disorder in individuals living outside of the terrorist attack sites.

Studies have also found a strong relationship between media coverage, children, and fear of a terrorist attack, and that people with children experience higher levels of stress and anxiety regarding a potential terrorist attack than those without. (e.g. Gershoff & Aber, 2004; Keinan, Sadeh, & Rosen, 2003; Saylor, Cowart, Lipovsky, Jackson, & Finch, Jr., 2003; Schuster et al., 2001; and Stein et al., 2004,). Two possible explanations have been discussed. The first is that stress symptoms in parents are a result from stress symptoms in their children (Keinan, Avi, & Rosen, 2003). This was partly explained by the authors that children showed adverse reactions to TV coverage, and that parents who observed anxiety symptoms in their children might have felt increased anxiety themselves (Keinan, Avi, & Rosen, 2003). The second explanation, offered by Saylor et al. (2003), is that children's responses to disasters relate to the responses of their parents. By extension, they theorize, children's exposure to adults moved by the events of 9/11 may well have communicated the magnitude of the devastation to children. In other words, children's reaction to terrorist events is affected by their parents' reactions, and vice-versa. Additionally, Keinan et al. (2003) and Saylor et al. (2003) found that the more exposure to media coverage of the 9/11 events, the more stress and anxiety both children and parents felt.

Fear of Terrorism, Government, and Isolation

A higher perceived fear of terrorism has also been reported to have a connection to a higher distrust of government, as well as to increased levels of isolation and alienation (Australian Psychological Association, 2004). Gray (2003) found that increased trust in government institutions decreases the fear of a terrorist attack.

Fear of Terrorism and Socioeconomic Indicators

A number of studies have found certain socioeconomic and demographic indicators that are associated with higher fear of a terrorist attack. These

include such indicators as race, gender, household structure, household income, education level, and age. Additionally, fear of terrorism increases with fear of crime and victimization.

For race and gender, research has found that minorities (especially Hispanics) and women had more terrorism-related psychological reactions than whites and men, respectively (Boscarino et al., 2003; Galea et al., 2002; Phillips, Featherman & Liu, 2004; Keinan et al., 2003; Schlenger et al., 2002; Shuster et al., 2001; Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002; Stein et al., 2004; Wadsworth et al., 2004). These results agree with the broader literature on gender and ethnic differences in reaction to trauma exposure among both children and adults. An explanation for these differences has focused on the different coping mechanisms for minorities and women. Findings have suggested that women tend to respond in a more emotionally expressive manner than men, and that the greater apparent anxiety of female participants may simply reflect their greater willingness to report anxiety (Eagly & Wood, 1991). Studies have found similar results explaining higher anxiety levels among minorities, finding there is a social aspect to coping mechanisms for minorities as they deal with stress and anxiety (Riley-Eddins, 1999). As Fothergill and Peek (1999: 168) noted in their review of literature on race, ethnicity, and disasters, previous studies "paint a picture of increased vulnerability and risk to disasters for racial and ethnic communities in the US."

Little research has studies on the relationship between household structure and the levels of fear, but Phillips, Featherman, and Liu (2004) found that single mothers experienced higher levels of anxiety than other households. This is consistent with previously mentioned research indicating higher levels of stress for females and parents. Silver et al. (2002) found that households undergoing marital separation experienced higher levels of fear and stress regarding a possible terrorist attack than other households, and suggested that the difference is also due to variations in coping mechanisms.

For income and education, research has found higher levels of stress and anxiety for populations

with lower income and less education (Boscarino et al., 2003; Fothergill, Maestas, & Darlington, 2004; Stein et al., 2004). This may result in part from less accessibility to information and public education. Finally, older populations were found to experience higher levels of stress and anxiety (Boscarino et al., 2003 and Wadsworth et al., 2004). In stable times, a significant number of older people suffer from regular anxiety due to such factors as failing health, medical complications, and the loss of friends and family members. Today, with war and terrorism very visible, older people may feel overwhelmed and that the world is not the safe place they had hoped it to be (Botsford Health Care Continuum, 2003).

Similarly, coping mechanisms may also differ among people for crime and victimization. Some studies, such as Haridakis and Rubin (2005), have shown that increased media coverage increases fear of victimization. Additionally, Lerner et al. (2003) and Haridakis and Rubin (2005) have shown a relationship between an increase in fear of a terrorist attack and fear of being a victim of a crime. As with many of these relationships, some of this fear can be attributed to the coping mechanisms of the individual, as well as the social networks that the individual has created (Levin, 2004). Lerner et al. (2003) believe there is a relationship between fear of being a victim of crime and fear of a terrorist attack due to the feeling of overall pessimism in the individual. Althiede (2003: 43) goes one step further, discussing the possibility that terrorism and crime have become inextricably linked in the lexicon of American language:

The attacks on certain buildings in the United States on 9/11 were cast as "terrorism," and that term has now become widely used. Just as crime and criminality has emerged over decades with numerous myths, identities and characteristics of "criminals." Just as "crime" resonates with audiences who tend to think of "violent crime," and in turn, "criminal types, characteristics and images," so too has terrorism. Terrorism has been socially constructed as a variant of crime, and...the terrorism story has been told as a crime story.

This study looked at how the variables related to urbanism and density, media exposure, and children, and socioeconomic and demographic indicators affect fear of a possible terrorist attack. The review of the research led to expectations that respondents with higher levels of fear about a possible terrorist attack in Franklin County would:

1. Live in higher density areas;
2. Be more likely to want to move to the suburbs or rural areas;
3. Live closer to the downtown Columbus area²;
4. Have higher exposure to media coverage of the 9/11 attacks;
5. Believe they can take actions to prevent their homes from a possible terrorist attack, but believe that government cannot (i.e. heightened sense of isolation).
6. Have more children in the household;
7. Feel less satisfied with crime in their neighborhood and are less active in their neighborhood; and
8. Have lower incomes, lower education levels, and are older, minorities, female, and more likely to live in a married household.

METHODOLOGY

After 9/11, the Center for Urban and Regional Analysis (CURA) at the Ohio State University conducted a homeowner preference survey in Franklin County, Ohio in 2004. A series of questions were asked not only about homeowner preferences, but also about community and neighborhood satisfaction, interaction with neighbors, and reactions to the 9/11 terrorist attacks. Using responses and information received from the questionnaires, a linear regression model estimated the level of agreement with this statement.

Franklin County, at the heart of the Greater Columbus area, has more than a million residents. The county includes the city of Columbus, the largest city in Ohio (and the 15th largest in the nation. Columbus, the state capital, has an economy focused on government functions, education, insurance, and related sectors, and the area has a healthier economy than most Rustbelt metropolises (Morrow-Jones, Irwin, &

Roe, 2004a). However, it continues to have significant population shifts within the city. Between 1990 and 2000, the Columbus “older city” (defined by the city’s 1950 corporate boundaries) lost 23,603 people, the rest of Columbus (the “newer city”) gained 102,163, and suburban parts of the county grew by 46,633 (Community Research Partners, 2004).³

In 2004⁴, CURA mailed 2,600 surveys to randomly selected homeowners in Franklin County. Eight hundred thirty-seven people responded (32% return rate). The sample was drawn from the Franklin County auditor’s records. “Homeownership” is determined by land use codes, site and mortgage mailing addresses in those records. Respondents were asked to verify their ownership status as well. The survey contained conjoint questions asking people to select between hypothetical housing/neighborhood options within a budget constraint. The survey also asked questions about housing/neighborhood satisfaction and desires, density, mobility and remodeling plans, and demographic characteristics of the household. Respondents were asked to indicate their level of agreement with a series of statements on a Likert scale of 1 to 7 (where 1=Strongly Disagree, 4=Neutral, and 7=Strongly Agree). The survey also asked people’s opinions about the impact of the 9/11. One statement was “I am concerned about a possible terrorist attack on Franklin County.” A relatively high number of respondents said they were concerned that Franklin County would be a target for a terrorist attack, with 30.3% of the respondents responding with a 5, 6, or 7. The Columbus region was not a target of the attack on 9/11, but along with most of the country, the area was profoundly affected in many ways. (“Bridging Differences: Country can find strength in shared values,” September 25, 2001).

For this analysis, the principal question of interest was the individual’s response to the question: “I am concerned about a possible terrorist attack in Franklin County”, with respondents giving their level of agreement using a Likert scale ranging from 1 to 7, as well as “Not Applicable” and “Do Not Know.” “Not Applicable, Do not Know,” or no answer the question were dropped from the analysis. Additionally, since the mailing was targeted to homeowners, the few respondents who were not homeowners were not included

in the analysis. Removing respondents that were not homeowners and those that did not respond to the question about a possible terrorist attack in Franklin County left a final sample size of 812.

Residential location within the county relative to downtown Columbus is calculated by measuring distance from the respondent’s address to downtown (intersection of Broad Street and High Street). The model will test how various questions related to the coping mechanisms of the respondents affect their level of fear about a terrorist attack. These variables include the level of agreement with statements about whether the respondent or the government can protect the respondents’ homes and families from a terrorist attack, the respondents’ level of interaction with their neighbors, the respondents’ feelings about how safe they are in their neighborhoods, respondents’ likelihood of moving, and self-reported socioeconomic variables.

What explains the relatively high proportion of respondents concerned with a possible terrorist attack in Franklin County? This study analyzes the effect of a variety of indicators on the degree to which people believe that Franklin County is a target for a terrorist attack, as well as what role density plays in these perceived risks. The analysis used linear regression, with the dependent variable being the aforementioned level of agreement to the statement “I am concerned about a possible terrorist attack on Franklin County”. This study looked at how nineteen independent variables explained a respondent’s response to the dependent variable. Descriptive statistics for the variables are found in Table 1.

Non-response rate for the variables ranged from less than 1.0 percent or 0 percent for six variables, to 12.2 percent (for the question relating to the likelihood of moving to a suburban area), with most under 5 percent. Mean substitution is used to impute missing values of some independent variables.⁶ A listwise deletion method would have reduced the sample size by 35%. A pairwise deletion method would have reduced the sample size by 18%. I preferred to avoid this loss of information, so the mean substitution method was used. A concern using the mean substitution method is substituting for those variables with higher missing

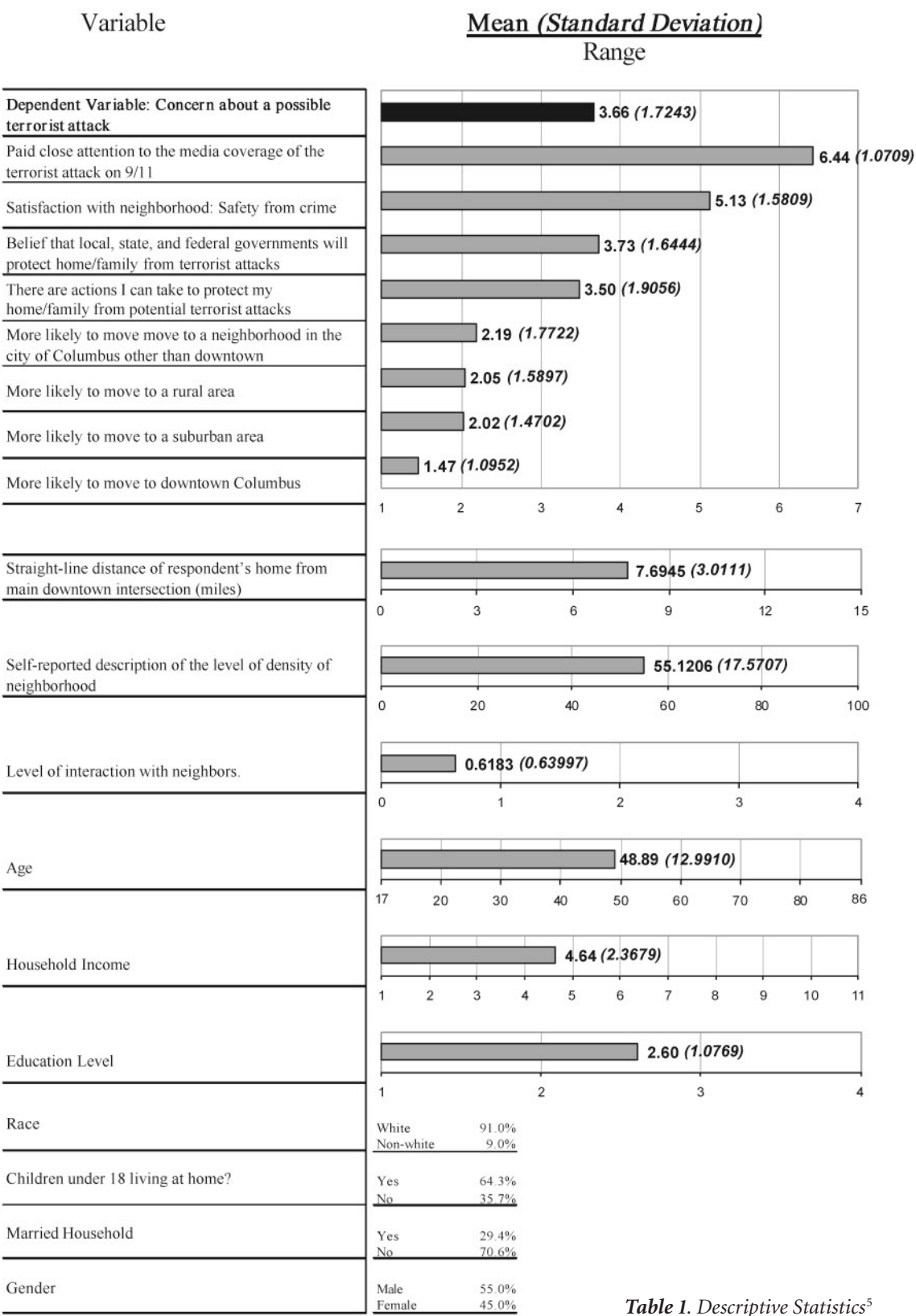


Table 1. Descriptive Statistics⁵

values. However, the results indicate consistent results using listwise, pairwise, or mean substitution methods for those variables with higher missing values.⁷

RESULTS

Table 2 reflects the results of the linear regression analysis. Most expectations received support. Respondent with higher levels of fear of terrorism were found to 1) be more likely to want to move to suburban or rural areas; 2) have higher exposure to media coverage of the 9/11 attacks; 3) believe they could take actions to prevent their homes from a possible terrorist attack; 4) have children in the household and feel less satisfied with crime in their neighborhood; 5) have lower incomes and lower education levels; and 6) be more likely to be older, minority, and female. Note that the first three have the largest effect sizes.

Unexpectedly, respondents living in higher density areas reported themselves as actually *less* likely to fear a possible terrorist attack; and as respondents’ participation in organized neighborhood activities increased, fear of a terrorist attack in Franklin County increased.

DISCUSSION

The events of 9/11 changed many lives in the United States, particularly in the communities attacked and among the survivors; but the attack had a wide effect. This sense of anxiety and fear about a future terrorist attack has been felt elsewhere. This is evident in Franklin County, Ohio, even though it is 540 miles from New York City, 420 miles from the Pentagon, and 250 miles from the Flight 93 crash site. A better understanding of what people feel and why, who these people are, and how they are coping with this anxiety is critical to minimizing unnecessary panic and fear. .

This study expected that certain variables related to coping would be associated with higher fear, and the findings support the expectations. Females, minorities, older residents, less educated residents, and residents with children in the household had higher levels of fear. Residents who had more interaction with neighbors had a higher fear of a terrorist attack. Many of these same groups also have higher fear of

crime and victimization. In a related finding, those individuals less satisfied with crime levels in their neighborhood reported higher fears of a possible terrorist attack. As with fear of crime, exposure to media had a significant relationship to increasing levels of fear about a future terrorist attack.

As expected, individuals who felt they could take actions to protect their homes and families against a possible attack had high levels of fear. This may be a result of the intense media coverage after the attacks, or the anthrax mail scare that occurred immediately afterwards, as well as residents constantly being made aware of what they need to do to prevent or prepare for a terrorist attack. The results suggest all the new national security and warning improvements, as well as war in two nations accused of sponsoring terrorism, has done little to decrease people’s concern about a future terrorist attack or increase their faith in the government. The results show no significant relationship between a respondent’s fear of terrorism and the belief that government could do anything to protect one’s home from a terrorist attack.

This study shows conflicting results regarding the future of the city. On one hand, geographic proximity to the downtown area and the likelihood of moving to downtown had no significant association with fear, and those that lived in denser areas had less fear of a terrorist attack. Yet, people most fearful of a terrorist attack stated they were more likely to move to a rural area, the suburbs, or to a non-downtown neighborhood. These results will add to the ongoing debate over the future of concentrated cities and whether less-dense areas will be preferred due to a lower likelihood of a future attack (see Morrow-Jones, Irwin, & Roe, 2004b).

Future research should go beyond homeowners to consider renters, who may differ in many ways from homeowners and who will have a larger percentage of lower income and minority populations, as well as populations nearer the central city. It should also use actual density (through GIS), as opposed to self-reported density. Or, it should at least test the validity of the self-reported measure, which may prove useful in identifying perceived density versus actual density. With regard to government protection, the survey did not differentiate among the various

	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta	Importance	t-value	Significance
Dependent Variable: Concern about a possible terrorist attack	1.2090	0.6202			1.9494	0.05
Paid close attention to the media coverage of the terrorist attack on 9/11	0.2725	0.0526	0.1692	1	5.1800	0.00 ***
There are actions I can take to protect my home/family from potential terrorist attacks	0.1345	0.0320	0.1450	2	4.1961	0.00 ***
More likely to move to a suburban area	0.1395	0.0522	0.1146	3	2.6695	0.01 ***
Satisfaction with neighborhood: Safety from crime	-0.1066	0.0391	-0.0977	4	-2.7229	0.01 ***
Race	0.5463	0.2039	0.0882	5	2.6784	0.01 ***
More likely to move to a rural area	0.0936	0.0455	0.0844	6	2.0577	0.04 **
Self-reported description of the level of density of neighborhood	-0.0084	0.0038	-0.0802	7	-2.2347	0.03 **
Age	0.0109	0.0052	0.0788	8	2.0946	0.04 **
Education Level	-0.1273	0.0581	-0.0785	9	-2.1916	0.03 **
Children under 18 living at home?	0.2592	0.1350	0.0721	10	1.9207	0.06 *
More likely to move move to a neighborhood in the city of Columbus other than downtown	0.0716	0.0383	0.0715	11	1.8677	0.06 *
Level of interaction with neighbors	0.1743	0.0914	0.0642	12	1.9076	0.06 *
Gender	0.1957	0.1190	0.0562	13	1.6439	0.10 *
More likely to move to downtown Columbus	0.0588	0.0580	0.0366		1.0131	0.31
Married household	-0.0761	0.1407	-0.0201		-0.5407	0.59
Straight-line distance of respondent’s home from main downtown intersection (miles)	0.0074	0.0198	0.0129		0.3724	0.71
Belief that local, state, and federal governments will protect home/family from terrorist attacks	-0.0088	0.0363	-0.0083		-0.2413	0.81
Household income	0.0034	0.0282	0.0045		0.1195	0.90
Note: Adjusted R-Squared: 0.1717 ***Significant at p < 0.01 level. **Significant at p <0.05 level. *Significant at p <0.10 level.						

Table 2. Results of Regression.

levels of government. Perhaps, people respond differently to expected protection at the local, state, and federal levels. Thus, future research should look at how the various levels of government are perceived by respondents. Finally, it should consider the following: coping mechanisms and demographic characteristics, crime and victimization, the role of government, and density and the central city.

This study has shown that certain populations, such as those with children under eighteen years old in the household, those with less education, and those that believe that there are actions they can take to protect themselves against a terrorist attack, have higher levels of fear regarding a future terrorist attack. As Fullerton et al. (2003: 10) noted,

“[W]idespread fear, uncertainty, and stigmatization are common following terrorism and disasters. These fears require education about the actual risk and instruction in how to decrease risk, whether the risk is falling buildings in an earthquake or infection from a biological weapon. Instruction in active coping techniques can increase feelings of control and efficacy.”

Continued research into coping mechanisms and education to the most vulnerable populations, especially in terms of terrorism risks, is critical. Government (at all levels) plays a significant role in this education process.

Initial results suggest that the framing of terrorism as a criminal act may actually be increasing the levels of anxiety of those populations especially vulnerable to crime, such as the elderly, previous victims of crime, and those living in high-crime areas. Future studies should look at those people who have been victims of crime, those that live in higher-crime areas, and whether there are differences in how they fear future terrorist attacks. Results may indicate increased outreach and education toward those populations who have been victims of crime and who live in higher-crime areas in order to lessen their concerns over future terrorist attacks. A heightened awareness of possible future terrorist attacks is warranted, but

efforts to reduce irrational fear in the most vulnerable populations needs to be closely studied.

Additionally, how these fears relate to an individual’s feelings about density and the central city need to be further explored. Can fear of terrorism, especially irrational fear, speed the deconcentration of the city, or is it more a question of proximity to the downtown area rather than higher density that people fear? This study suggests that higher density does not relate to a higher fear of terrorism. On the contrary, those that lived in higher density areas had a lower fear. Yet, this study found those homeowners with higher fears of terrorism had a higher likelihood of wanting to move towards rural and suburban areas.

Is this fear of terrorism related to the risk of disaster or environmental risk, and residential mobility? If so, this risk of terrorism may not have much effect on densely populated areas, as Hunter (1998: 271) found, “densely populated areas posing high levels of environmental risk may actually receive more migrants than areas with little population and little risk.” As an example, she notes the incident at Three Mile Island nuclear power plant, near Harrisburg, Pennsylvania, in 1979. Over several days, radioactivity was sporadically released from the plant and approximately 60% of the population living within five miles evacuated the area (Goldhaber, Houts, & DiSabella, 1983). In exploring the Three Mile Island related out-migration, Goldhaber et al. (1983) found that only 1–2% of the population within a 5-mile radius appeared affected by the crisis in such a way that they permanently moved from the area, and that other factors such as job and family characteristics had considerably greater effect on moving than did attitudes about Three Mile Island. Thus, while residents may report intentions to move, they may not do so.

The implications can have long-term consequences on a metropolitan area or a central city. Thus, does this mean that higher density areas in a central city further from downtowns, high density suburbs, or even higher density development in a rural area can be seen as an attractive alternative, especially in terms of allaying fears of terrorism? What does this mean for downtowns? The debate will continue about the deconcentration of the city after the 9/11 at-

tacks. However, it is critical that residents be properly educated in terms of their risks to terrorism, and all attempts should be made to less irrational fears that could unnecessarily expedite the further decentralization of the city.

REFERENCES

Alexander, David. (2003). Terrorism, Disasters, and Security. *Prehospital and Disaster Medicine*, 18(3), 165–169

Altheide, David L. (2003). Notes Towards a Politics of Fear. *Journal for Crime, Conflict and the Media*, 1(1): 37–54.

Ambrose, S. E. (2001, October 1). Beware the Fury of an Aroused Democracy. *Wall Street Journal*, p. A24.

Australian Psychological Association. (2004). *Coping with Threats of Terrorism*. [Information Brochure].

Berube, Alan & Rivlin, Alice. (2002). *The Potential Impacts of Recession and Terrorism on US Cities*. The Brookings Institution Center on Urban and Metropolitan Policy and The Brookings Institution Greater Washington Research Program.

Boscarino Joseph A., Figley, Charles R., & Adams, Richard E. (2003). Fear of Terrorism in New York After the September 11 Terrorist Attacks: Implications for Emergency Mental Health and Preparedness. *International Journal of Emergency Mental Health*, 5(4), 199–209.

Botsford Health Care Continuum. (2003). *Anxiety in the Elderly Can Take Many Forms*. [Press Release]. Bridging Differences: Country can find strength in shared values. (2001, September 25). [Editorial]. *The Columbus Dispatch*, p. 10A.

Campbell, Karen E. & Lee, Barrett A. (1998). Sources of Personal Neighbor Networks: Social Integration, Need, or Time. *Social Forces*, 70 (4), 1077–1100.

Clarke, Susan E., Michael Pagano, Gary Gaile, John Logan, Chris Hamnett, Rudy Torres, & Alma H. Young. (2002). Urban Scholarship after September 11, 2001. *Urban Affairs Review*, 37, 460–67.

Community Research Partners. (2004). *Community Indicators Database Report*. Columbus, Ohio.

Dittmar, Hank, & Campbell, Sarah C. (2002). Will September 11 Bring Us Together or Push Us Apart? The War on Terror and Metropolitan Stability. *Transportation Quarterly*, 56(4), 43–49.

Eagly, A. H., & Wood, W. (1991). Explaining Sex Differences in Social Behavior: A Meta-Analytic Perspective. *Personality and Social Psychology Bulletin*, 17, 306–315.

Farish, Mathew. (2003). Disaster and Decentralization: American Cities and the Cold War. *Cultural Geographies*, 10, 125–148.

Fothergill, Alice & Peek, Lori A. (2004). Poverty and Disasters in the United States: A Review of Recent Sociological Findings. *Natural Hazards*, 32, 89–110.

Fothergill, Alice, Maestas, Enrique G. M., & Darlington, JoAnne DeRouen. (1999). Race, Ethnicity and Disasters in the United States: A Review of the Literature. *Disasters*, 23(2), 156 –173.

Fullerton, Carol S., Ursano, Robert J., Norwood, Ann E., & Holloway Harry H. (2003). Trauma, terrorism, and disaster. In R. Ursano, C. Fullerton, and A. Norwood (Eds.), *Terrorism and Disaster: Individual and Community Mental Health Interventions*, (pp. 1–22). London: Cambridge University Press.

Galea, Sandro et al. (2002). Psychological Sequelae of the September 11 Terrorist Attacks in New York City. *New England Journal of Medicine*, 346(13), 982–987.

Gershoff, Elizabeth, & Aber, J. Lawrence. (2004). Assessing the Impact of September 11th, 2001, on Children, Youth, and Parents: Methodological Challenges

to Research on Terrorism and Other Non-normative Events. *Applied Developmental Science*, 8 (3), 106–110.

Goenjian, Armen K., & Steinberg, Alan M. (2000). Prospective Study of Post-traumatic Stress, Anxiety, and Depressive Reactions after Earthquake and Political Violence. *American Journal of Psychiatry*, 157 (6), 911–916.

Goldhaber, Marilyn K., Houts, Peter S., & DiSabella, Renee. (1983). Moving After the Crisis: A Prospective Study of Three Mile Island Area Population Mobility. *Environment and Behavior*, 15 (1), 93–120.

Gray, George. (2003, January 22–23). *Organizing to Confront Terrorism: The Role of Risk Communication*. Paper presented at the Academy Health: National Health Policy Conference.

Haridakis, Paul M., & Rubin, Alan M. (2005). Third-Person Effects in the Aftermath of Terrorism. *Mass Communication & Society*, 8 (1), 39–59.

Hayden, Dolores. (2003). *Building Suburbia*. New York: Vintage Books.

Hunter, Lori M. (1998). The Association Between Environmental Risk and Internal Migration Flows. *Population & Environment*, 19 (3), 247–277.

Jackson, Kenneth T. (1985). *Crabgrass Frontier*. New York: Oxford University Press.

Johnson, Jr., James H., & Kasarda, John D. (2003). 9/11 and the Economic Prospects of Major U.S. Cities. *Planning & Markets*, 6 (1). Retrieved February 2, 2005, from <http://www.pam.usc.edu/volume6/v6i1a1s1.html>.

Keinan, Giora, Sadeh, Avi, & Rosen, Sefi. (2003). Attitudes and Reactions to Media Coverage of Terrorist Acts. *Journal of Community Psychology*, 31 (2), 149–165.

Krueckberg, Donald A. (1983). *Introduction to Planning History in the United States*. New Brunswick, NJ: The Center for Urban Policy Research.

Leon, Gloria R. (2004). Overview of the Psychosocial Impact of Disasters. *Prehospital and Disaster Medicine*, 19 (1), 4–9.

Lerner, Jennifer S., Gonzalez, Roxana M., Small, Deborah A., & Fischhoff, Baruch (2003). Effects of Fear and Anger on Perceived Risks of Terrorism: A National Field Experiment. *Psychological Science*, 14 (2), 144–150.

Little, R. J. A., & Rubin, D. B. (1987). *Statistical Analysis with Missing Data*. New York: John Wiley & Sons.

Low, Setha M., Taplin, Dana H., and Lamb, Mike. (2005). Battery Park City: An Ethnographic Field Study of the Community Impact of 9/11. *Urban Affairs Review*, 40, 655–682.

Morrow-Jones, H.A. (1998). Repeat Homebuyers and American Urban Structure. *Urban Geography*, 19 (8), 679–694.

Morrow-Jones, Hazel, Irwin, Elena G., & Roe, Brian. (2004a). Consumer Preferences for Neotraditional Neighborhood Characteristics. *Housing Policy Debate*, 15 (1), 171–202.

———. (2004b, November). *The Impact of the Terrorist Attacks of 9/11/2001 on Homeowner Satisfaction and Moving Plans*. Presented at the national meeting of the Association of Collegiate Schools of Planning, 2004.

O’Toole, R. (2001). Is Sprawl A Defense Against Terrorism? *Environment & Climate News*. Retrieved February 1, 2005 from <http://www.heartland.org/Article.cfm?artId=802>.

Pantelic, Jelena, Srdanovic, Bogdan, & Greene, Marjorie. (2005, April 4–6). *Post Modern Urbanization and the Vulnerability of the Poor*. Paper Presented at the Third Urban Research Symposium “Land Development, Urban Policy and Poverty Reduction,” The World Bank and Institute of Applied Economic Research (IPEA), Brasilia, DF, Brazil.

Phillips, Deborah, Featherman, David & Liu, Jinyun. (2004). Children as an Evocative Influence on Adults’ Reactions to Terrorism. *Applied Developmental Science*, 8 (4), 195–200.

Riley-Eddins, Essie A. (1999). Ethnicity and Coping: The Multiaxial Model of Coping. *Journal of Multicultural Nursing & Health*, 5 (3). Retrieved February 18, 2005 from http://www.findarticles.com/p/articles/mi_qa3919/is_199901/ai_n8849117.

Rothe, Dawn, & Muzzatti, Stephen. (2004). Enemies Everywhere: Terrorism, Moral Panic, and US Civil Society. *Critical Criminology*, 12 (3), 327–350.

Rubin, D.B. (1987). *Multiple Imputation for Nonresponse in Surveys*. New York: John Wiley & Sons.

Saylor, Conway F., Cowart, Brian L., Lipovsky, Julie A., Jackson, Crystal, & Finch, Jr., A. J. (2003). Media Exposure to September 11: Elementary School Students’ Experiences and Post-traumatic Symptoms. *American Behavioral Scientist*, 46 (12), 1622–32.

Schlenger W.E. et al. (2002). Psychological Reactions to Terrorist Attacks: Findings from the National Study of Americans’ Reactions to September 11. *Journal of the American Medical Association*, 288, 581–588.

Schuster, Mark A. et al. (2001). A National Survey of Stress Reactions after the September 11, 2001 Terrorist Attacks. *New England Journal of Medicine*, 345 (20), 1507–12.

Silver, R.C., Holman, E.A., McIntosh, D.N., Poulin, M., & Gil-Rivas, V. (2002). Nationwide Longitudinal Study of Psychological Responses to September 11. *Journal of the American Medical Association*, 288, 1235–1244.

Slone, Michelle. (2000). Responses to Media Coverage of Terrorism. *Journal of Conflict Resolution*, 44 (4), 508–22.

Stein, Bradley D. et al. (2004). The Emotional and Behavioral Impact of Terrorism on Children: Results from a National Survey. *Applied Developmental Science*, 8 (4), 184–195.

Sunstein, C.R. (2003). Terrorism and Probability Neglect. *Journal of Risk and Uncertainty*, 26 (2), 121–136.

Swanstrom, Todd. (2002). Are Fear and Urbanism at War? *Urban Affairs Review*, 38 (1), 135–140.

Wadsworth, Martha et al. (2004). Coping with Terrorism: Age and Gender Differences in Effortful and Involuntary Responses to September 11th. *Applied Developmental Science*, 8 (3), 143–157.

NOTES

¹ The author would like to acknowledge the support of the National Science Foundation for the 2001 Survey: “The Impact of the September 11th Terrorist Attacks on Factors that Influence the Decision to Stay, Remodel or Move among American Metropolitan Households.” Short Grant Exploratory Research, November 2001. Co–PI’s: Hazel A. Morrow-Jones and Elena G. Irwin.

² Ideally, I would also include a variable describing the place of work, but that is not possible with the analyzed data set.

³ One of the defining characteristics of the Columbus metropolitan area is that the City of Columbus has pursued an active annexation policy since the 1950s. For many years the City of Columbus’ annexation did not include annexation to the Columbus School District. The result is an unusual spatial pattern in which a household can reside in the City of Columbus, but live in a suburban-style neighborhood in a new house and send its children to a suburban school. Thus, the population shifts noted reflects these annexation policies of the City of Columbus, with the high growth in the “newer city” of Columbus, allowing residents to live in Columbus while sending children to suburban schools (Morrow-Jones, 1998). Without this policy, suburban growth in Franklin County could easily have been much higher than the 21% growth the suburbs saw from 1990 to 2000.

⁴ On May 1, 2003, a Columbus-based Ohio truck driver pleaded guilty to providing material support to al-Qaeda and to conspiring to do so, according to

U.S. District Court documents, with the suspected target being the Brooklyn Bridge. It is unknown what effect, if any, this event had on the 2004 survey respondents. Additionally, in June 15, 2004, federal authorities arrested a Somali immigrant, on suspicion that he was plotting to blow up a Columbus shopping mall. This widely publicized incident took place *after* the collection of the survey data, and before the respondents had heard about the arrest. Thus, this arrest and the subsequent media coverage does not affect the survey responses.

⁵ NACTIV: Interaction with neighbors: In the survey, respondents were asked “How often do you take part in any kind of organized neighborhood activity or event that involves other residents of your neighborhood?” The available responses were coded with 0=Never, 1=A few times a year, 2= Once a Week, 3= More than Once a Week, and 4=Everyday (Campbell & Lee, 1998). This question helps to describe the level of interaction in the neighborhood where the respondent lives. SCORE: Respondents’ self-reported description of the level of density of their neighborhoods: Survey respondents were asked to indicate with a slash (/) the density of development that best describes the neighborhood in which they currently live (Figure 1), on a continuum from rural (very low density housing) to urban downtown (very high density housing). Responses were then compiled by CURA staff, which interpreted them into numerical equivalents, based on a 0–100 scale, depending where the respondent’s slash was drawn. HHINC: Household Income: 1=less than \$20,000, 2=\$20,001–\$40,000, 3=\$40,001–\$60,000, 4=\$60,001–\$80,000, 5=\$80,001–\$100,000, 6=\$100,001–\$120,000, 7=\$120,001–\$140,000,

8=\$140,001–\$160,000, 9=\$160,001–\$180,000, 10=\$180,001–\$200,000, 11=\$200,001 and up. EDUC: Education level: 1=high school degree or less; 2=two-year, technical, or some college; 3= bachelor’s degree; 4=higher than bachelor’s degree.

⁶ There are problems associated with substituting the mean for missing values. The primary one is the reduction of the variance of the variable. Reduced variance can bias correlation downward or, if a case is missing values for two independent variables and means are substituted, correlation can be inflated. Mean substitution in the case of one variable can lead to bias in estimates of the effects of other or all variables in the regression analysis, because bias in one correlation can affect the beta weights of all variables (Rubin 1987). An option would have been to delete the cases with missing values. Little and Rubin (1987), among others, have demonstrated the dangers of simply deleting cases. Case deletion strategies assume that the deleted cases are a relatively small proportion of the entire dataset and are representative of it – that is, when cases are missing completely at random. In most research settings, however, missing data are indicative of some pattern and cannot safely be assumed to reflect randomness. In such circumstances, deletion can introduce substantial bias into the study. Moreover, the loss in sample size can appreciably diminish the statistical power of the analysis (Little and Rubin, 1987).

⁷ The four variables with the largest proportion of missing values were tested with the three methods (listwise, pairwise, and mean substitution) used to handle missing values and the results were consistent in all cases. Thus, only results for the mean substitution method are reported.

PUBLIC PERCEPTION OF PRODUCTIVE LAND USES: FRANKLIN COUNTY, OH

Cartwright, Charles; Cutshaw, Lisa; and McMannis, Tristan with Amidon, Jane; Nasar, Jack and Evans-Cowley, Jennifer (Austin E. Knowlton School of Architecture, The Ohio State University, Columbus, OH)

ABSTRACT

This research sought to determine the public perception of productive land uses and the visual characteristics or variables which affect those perceptions. It also sought to test the integration elements utilized in the spring studio such as public participation, signage, presence of art, façade treatment, color, and age.

The objective was achieved through the development and administration of two surveys at two different times. The first survey was administered to a) determine possible biases on the part of the participants; b) gauge general perception across the spectrum of productive land use, c) determine a threshold along a gradient of productive land uses whereby one-half are perceived negatively while the others are perceived in a positive manner; and d) determine visual characteristics which may affect perception, which was to be studied in the second survey.

The second survey gauged the affect of certain variables identified by the first survey through research and group consensus on the perception of productive land uses. The results of these surveys were intended to develop design implications/guidelines for future productive land use design. The perceived possible benefits of this research are the improved understanding of productive land use in the design profession, and improving the visual aesthetics of these endeavors which are a cornerstone of our society.

The results of our surveys indicated that four categories of productive land uses comprise those productive land uses which are perceived negatively. The

categories identified as defined by our study included mining/extraction, power generation, processing/refinement, and associate power infrastructure or transmission. Another result of our surveys leads to the affirmation of the initial postulate that capitalist endeavors are a valued component of our society. We also determined the affect of: signage (type/amount of info), the presence of art, integration of public use, and surficial treatment of facilities (color, material, and apparent age) on public perception which then led to the proposal of design guidelines for these sites and future research inquiries.

INTRODUCTION

Our society is based on capital gain, and thus one would think our productive land-uses would hold high-esteem and be valued within public perception. However, most of our productive endeavors on the land seem to be considered eye sores; uses such as steel production, chemical plants, mining operations, etc. are all regarded commonly with great disdain. Initial interest in this study was piqued during a graduate studio in landscape architecture in the spring of 2005. We sought to develop a land typology termed *Land Machine* which is a productive use on the land performing a biological process(es) and deriving a form from human technological implementation. As research progressed on the aforementioned typology, discussions arose about the general stigma certain industries or productive land-uses seem to possess within the general public’s perception. The study proposed here is an attempt to ascertain the reasons so many of these productive uses are disdained from the standpoint of visual aesthetics and at what point along a gradient of productive land use type do such endeavors on the land become undesirable. The second question is relevant because of the vast array of land uses which may be considered to be a productive land use. For example, a corn field is a productive land use and so is a steel foundry, yet one is commonly received more favorably than the other in terms of visual character. The goal of the research is to determine trends, correlations, and measures of central tendency with

the objective of developing guidelines for designers to improve the visual quality of productive land uses.

Reviews of literature such as Ian McHarg’s (1995) *Design with Nature*, *The City in History* (Mumford, L., 1961), Rachel Carson’s (2002) *Silent Spring*, have all portrayed industry and productive land use in a negative light as something which is a visual blight and is associated with threats to the environment, and human health and safety. While many of the concerns for health and safety were relevant in the late 1800s/early 1900s, our technologies have evolved and safety measures have been implemented so these land uses no longer pose the threat to health and safety they once did. However, while these industries and land uses are now much safer and healthier than when the initial perceptions were conceived, the negative bias toward these land uses has remained. Many people, whether or not they associate productive land uses like industry with threats to health and safety, voice opinions pertaining to the negative visual character of these places. This suggests the generally negative perception of productive land uses such as industry may be a flaw of design relating to appearance and/or function. This study seeks to determine if the negative perception people have about productive land uses can be improved through alterations made to the visual appearance and public integration of such endeavors.

PROCEDURES

Research Design

Research problem: Why are productive land uses perceived negatively by the general public from the standpoint of visual aesthetics? What can be done to improve public perception of productive land uses? The design of our study resulted in two mixed-method surveys. The first survey sought to determine if a relationship existed between public perceptions, apparently natural versus apparently human-engineered productive land uses, and second to identify the criteria, specific land uses, and variables to focus upon in survey two. The second survey sought to identify ways that those variables could be manipulated in the landscape in order to improve public perception of productive land uses.

For survey two, the four land-use types ranked lowest by respondents in survey one were digitally manipulated with the intention of testing the effects of six variables on public perception of productive land uses: signage, art, recreation, materials, age and color. These variables were chosen based on the previously identified visual characteristics which affected the public perception of productive land use in survey one. For each of the six variables, two and in some

Variable	Control Image	Manipulations		
Signage	Original image	A sign showing the name of the facility and a technical measure of productivity	A sign showing the same factors but adding the number of jobs created and a common-place measure of productivity	
Art	Original image	“High art”	“Pop-culture” art	
Recreation	Original image	Passive recreation	Active recreation	
Materials	Original image	Wood	Brick	Metal
Age	Original image	Older	Newer	
Color	Original image	Blue	Green	

Table 1

cases three variations were produced using Adobe Photoshop. The variables were altered in degrees from the original source image. For example, in testing the affect of signage we displayed the original unaltered image, then our first manipulation included a sign with just the name of the industry and it’s raw output, the second manipulation possessed the same sign as the first but added other economic factors indicating the output produced such as the number of people employed, homes powered, etc. All other aspects of the image were not altered to ensure validity of the study across the images.

We repeated this process for each of the four land-use images taken from survey one, resulting in 24 groups of manipulated photos (six variables applied to each of four photos). For each group of manipulations, respondents were asked to rank the photos in order of preference. For the least-preferred photo, they were asked to provide a reason for why they did not like the image.

Sample

In an attempt to generalize our findings to the population of Franklin County, Ohio residents we sampled random residents of Franklin County. The survey was conducted on the OSU campus. Participants were approached in a friendly manner, asked if they were residents of Franklin County and over the age of 18.

Measurement/Instrumentation

The survey utilized nominal and ordinal scale of quantitative measurement in conjunction with both open and close-ended questions to obtain the desired information.

Nominal measures were used in questions seeking a *yes/no* response or *like/dislike* such as “Do you or any member of your family work for a steel mill?” – or – “Do you like or dislike the image above? Please circle one.” Please see the attached survey for more information/examples.

Ordinal measures were used to determine relative influence of certain visual characteristics portrayed in photos and how well the participants like certain images rated on a scale from 1 to 10. Survey two required the rating of images from 1 to 3 (or 4).

DATA: SURVEY 1

Demographics

For the first survey, our sample size was 117 individuals, all of whom lived within Franklin County. The following figures show the diversity of our sample population with respect to age, gender, race, and the level of education.

Demographics					
Age					
18 to 26 yrs	26 to 35 yrs	36 to 45 yrs	46 to 55 yrs	55 to 65 yrs	66+ yrs
57%	21%	11%	10%	0%	1%
Gender					
Male				Female	
50%				50%	
Ethnicity & Race					
Caucasian		African American	Other	Asian	
65%		11%	7%	17%	
Relationship/Marital Status					
Single		Married	Divorced		Widowed
65%		30%	4%		1%
Participants with Children					
Have Children				Do Not Have Children	
23%				77%	
Occupational Environment					
Indoor	Outdoor		Mixed		
79%	3%		18%		
Living Environment					
Suburban	Urban		Rural		
53%	39%		8%		
Environment Utilized for Hobbies/Activities					
Outdoor	Both		Indoor		
39%	27%		34%		

Table 2

Word Ranking

The first section of survey one was designed to understand the public impression of words and the connotations that are associated with these words, whether “good” or “bad”. This was achieved by simply asking participant to circle the words they liked and cross out ones they did not like. These were then tabulated to generate the results below.

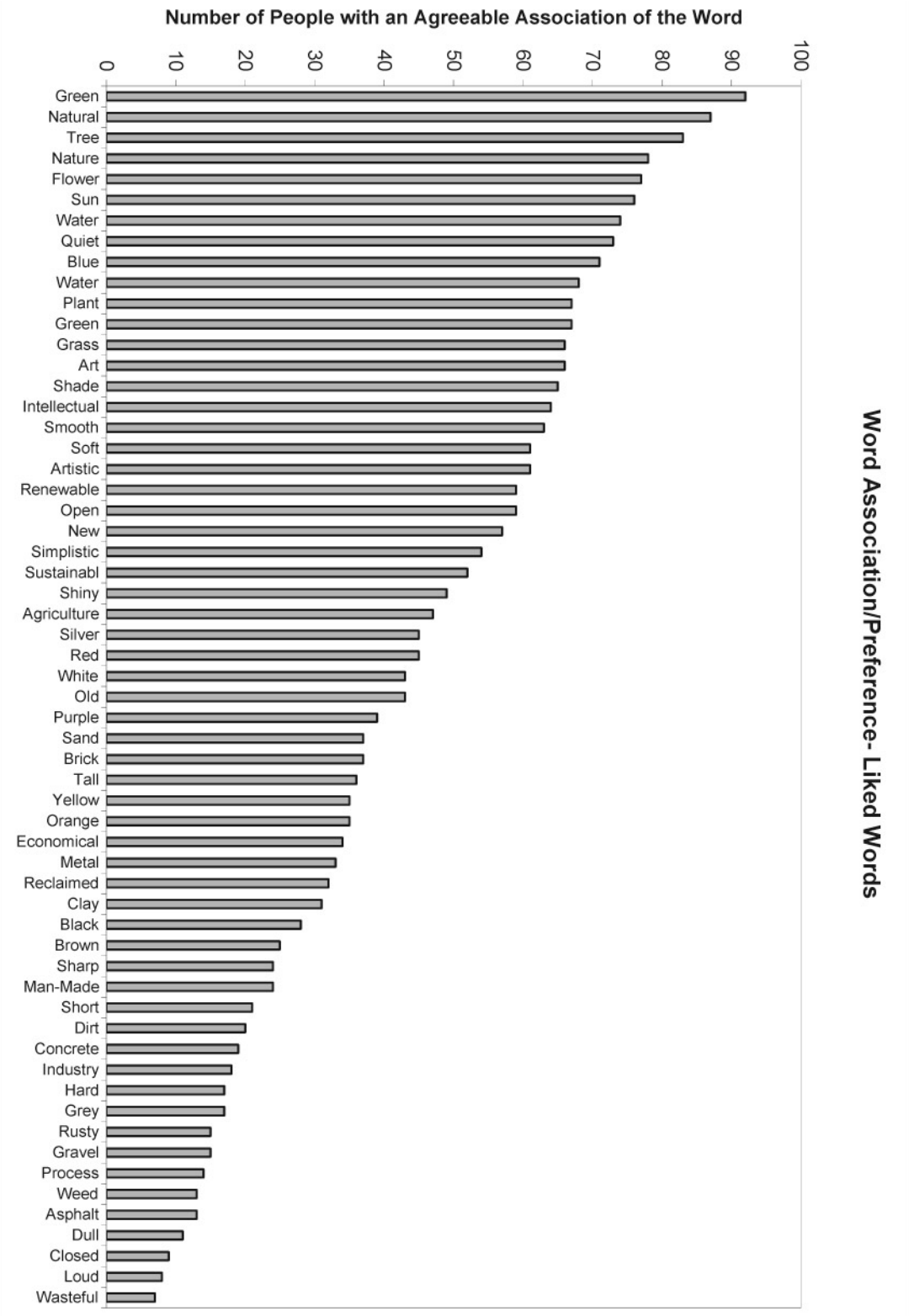


Figure 1

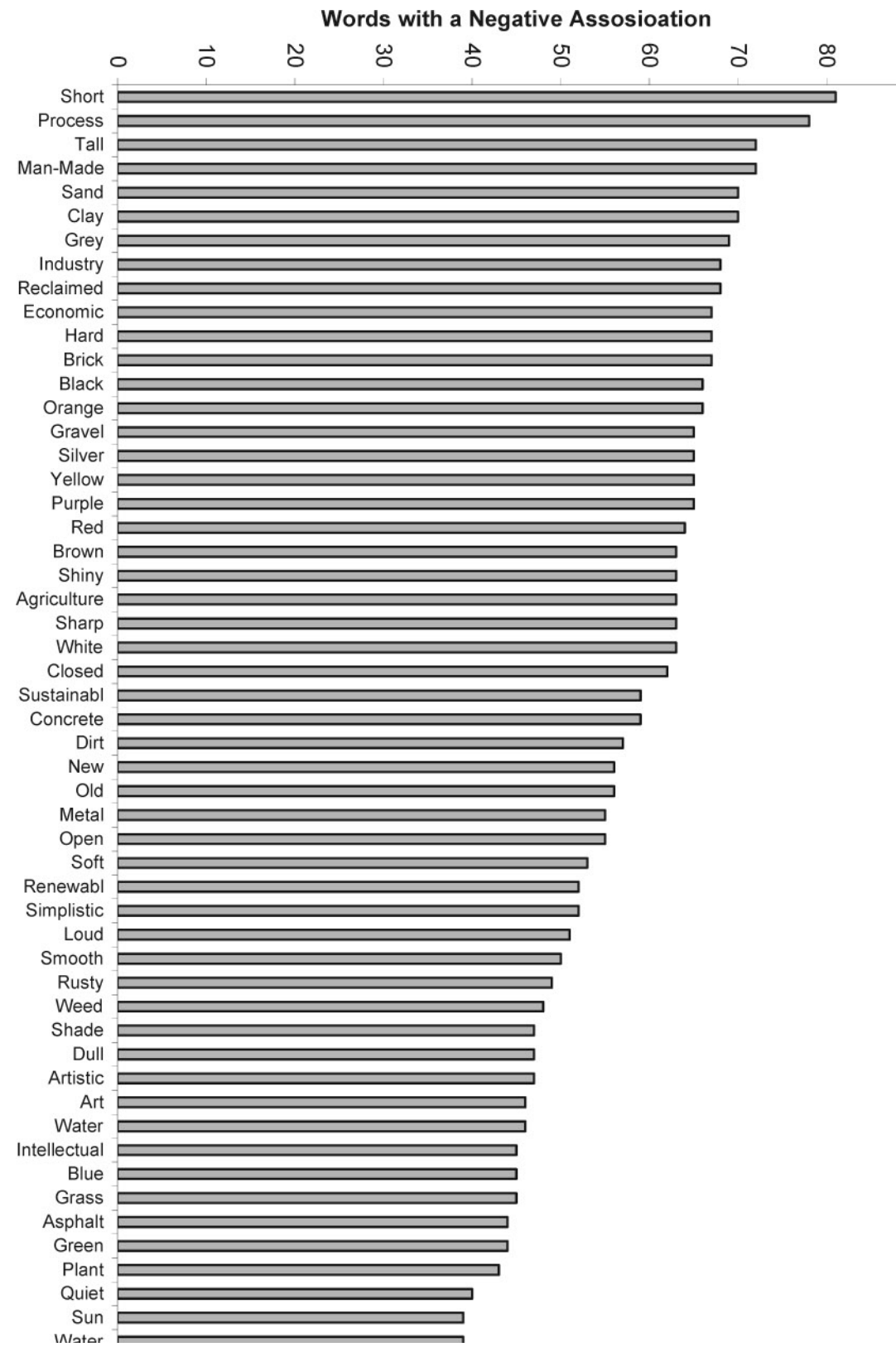
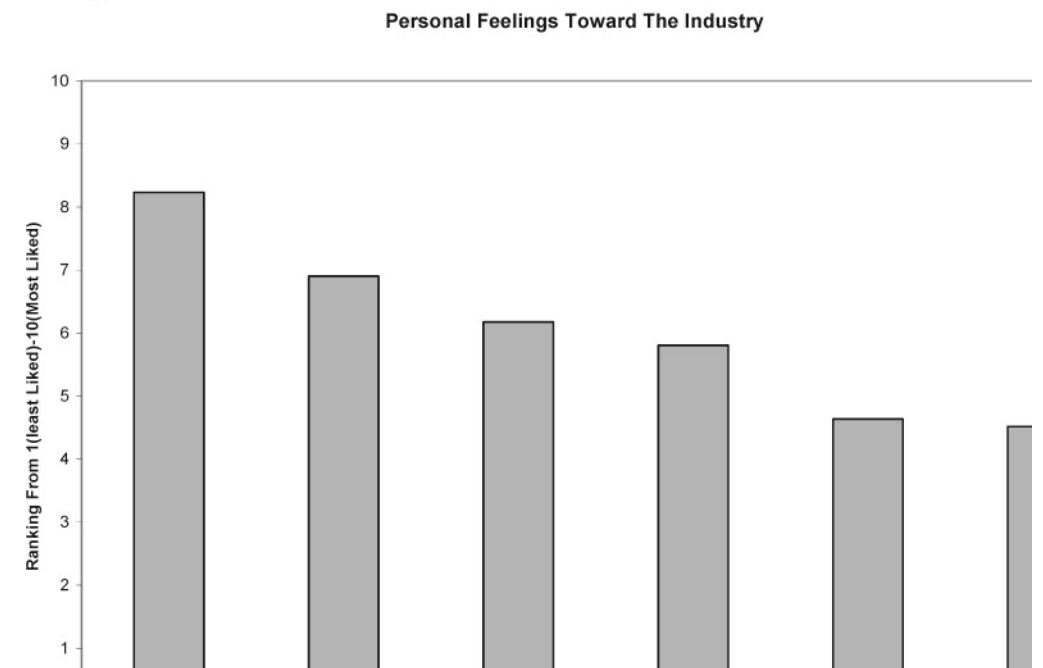
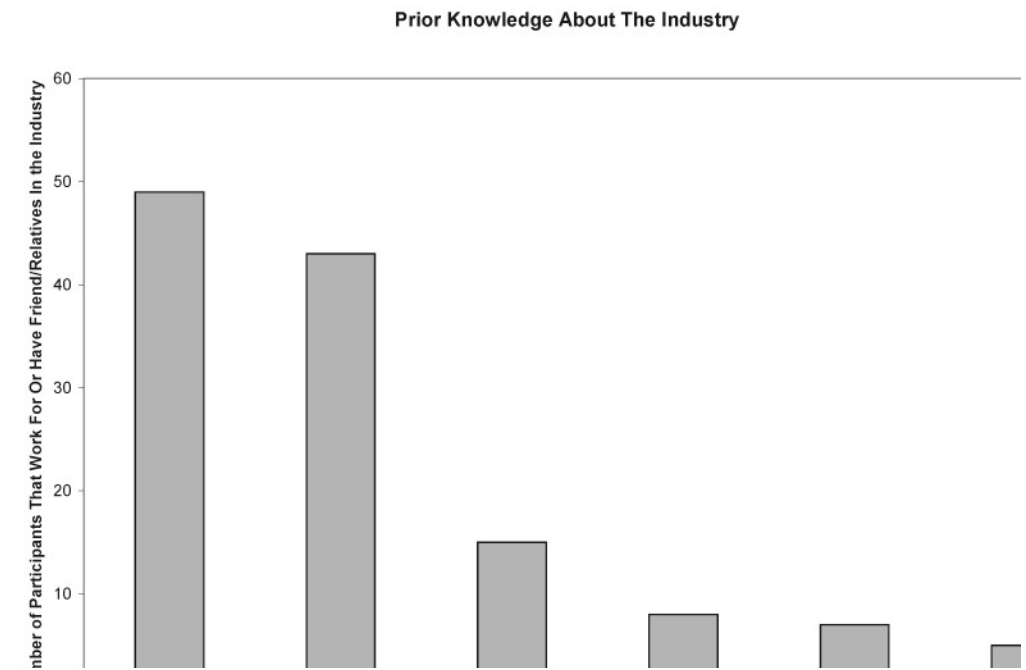


Figure 2

Knowledge and Perception of Industry

For understanding any bias toward a particular land use, the question of prior knowledge becomes an issue. The participants' knowledge of the given land use was determined by asking if they were a member of that

land use or had relatives or friends that worked within the land use. We established a base-level of perception toward the given land uses by asking participants to rate each land use on a scale of 1 (dislike) – 10 (like).



Figures 3 & 4

Perception of Images

To derive the types of land use images to be used in a follow-up survey, it was important to test a variety of both passive and active land uses. Images were rated individually on a scale of 1–10, the highest preference was listed as a 10 and the lowest preference was a 1.

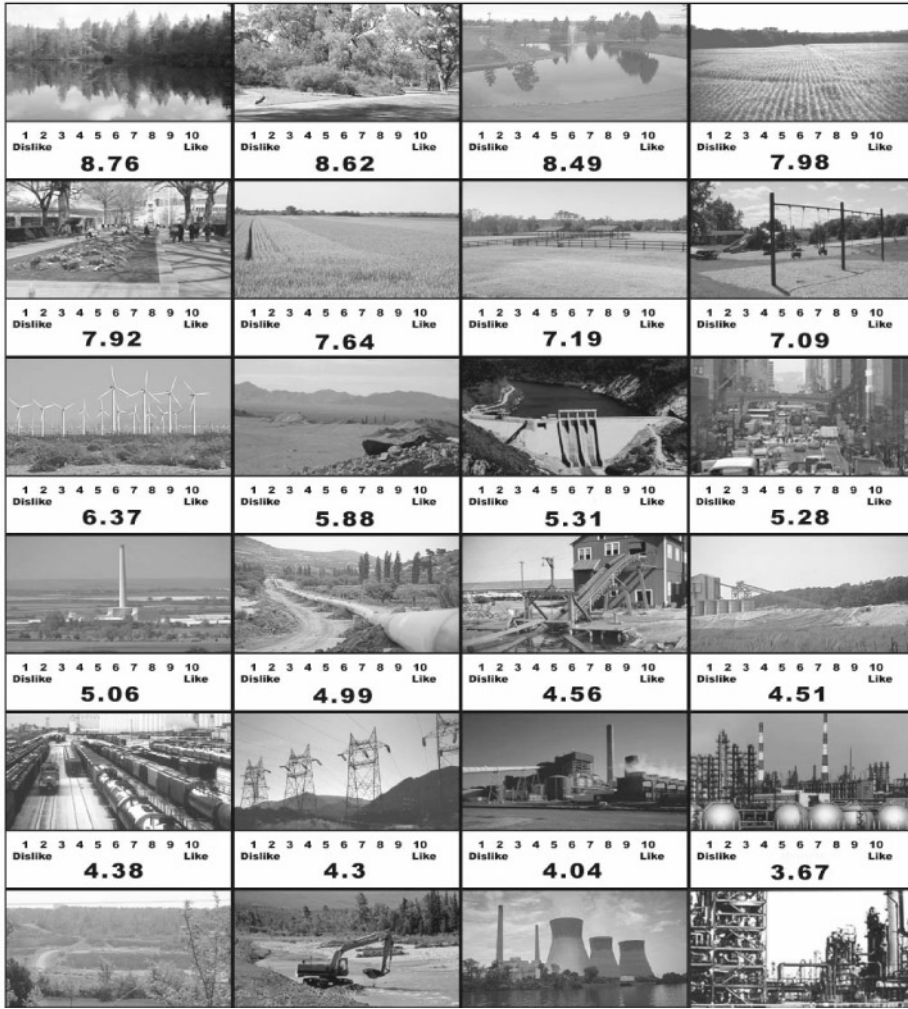


Figure 5. Survey images arranged by preference from most liked to least liked.

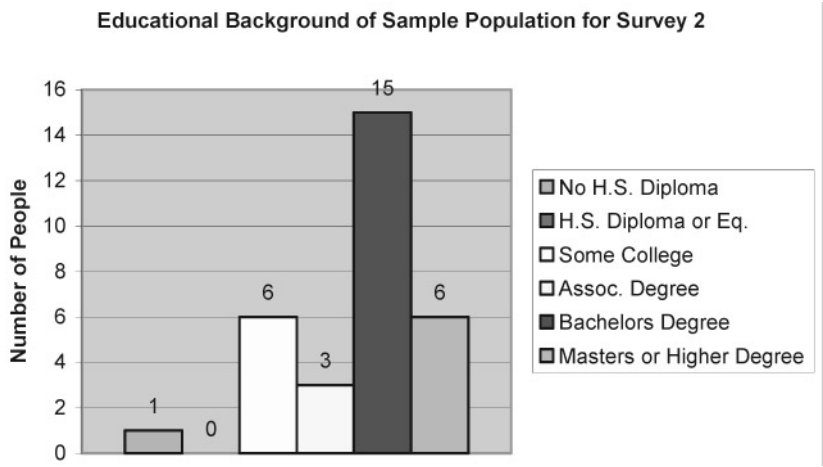
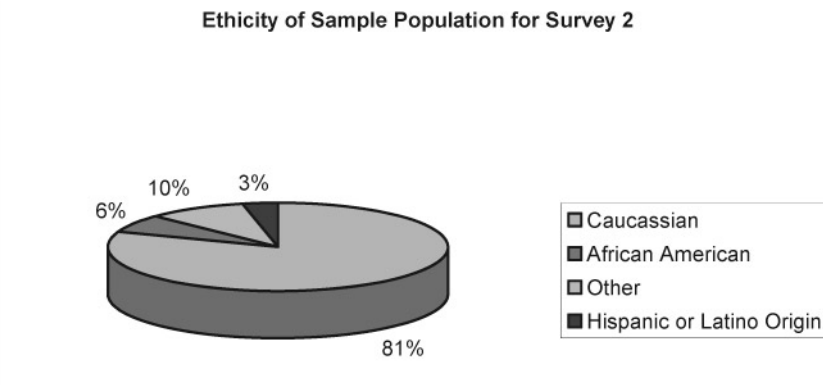
DATA: SURVEY 2

Demographics

For our second survey, our sample size was 31 individuals, all of whom lived within Franklin County. The figure below depicts the ethnic/racial make-up of those sampled for the purposes of this study.

The distribution of the age of the respondents was not symmetric thus the five-number summary was:
Median: 30 yrs Minimum: 21 yrs
Maximum: 59 yrs Q1: 26 yrs Q3: 40 yrs

Also of note is the information collected with regard to living environment. Respondents were given three choices; urban, suburban, and rural from which they were to choose the one which best described their current living conditions. Approximately 32.26% chose urban, 58.06% chose suburban, and 6.45% chose rural. The remainder not accounted for simply failed to respond to this question on the survey, hence why the percentages do not sum 100%.



Figures 6 & 7

RANKINGS & REASONS FOR RANKINGS

This survey contained a set of 24 images with 2 to 3 alterations per set depending upon the variable being tested. Participants were asked to rate the images 1 to 3 or 1 to 4 depending upon the variable being tested and number of alterations. The number 1 was used to denote the image which the participant liked the most in the set, and the number 3 or 4 was used to denote the image which they liked the least. Following are some bar charts of our data with regard to the ranking of the image sets and the reasons for the lowest ranked image in the set. Participants were asked to select a reason from a pre-defined list for the image they rated the lowest. The reasons they were given were:

- A. The participant found the image visually displeasing.
- B. The participant perceived the land use depicted to be a threat to human health.
- C. The participant perceived the land use depicted to be a threat to the environment.
- D. Other – Please specify.

Image Set 1 – Signage Elements

For the signage elements we included the same sign in every image at approximately the same scale and simply varied the amount of information, the type remained the same.

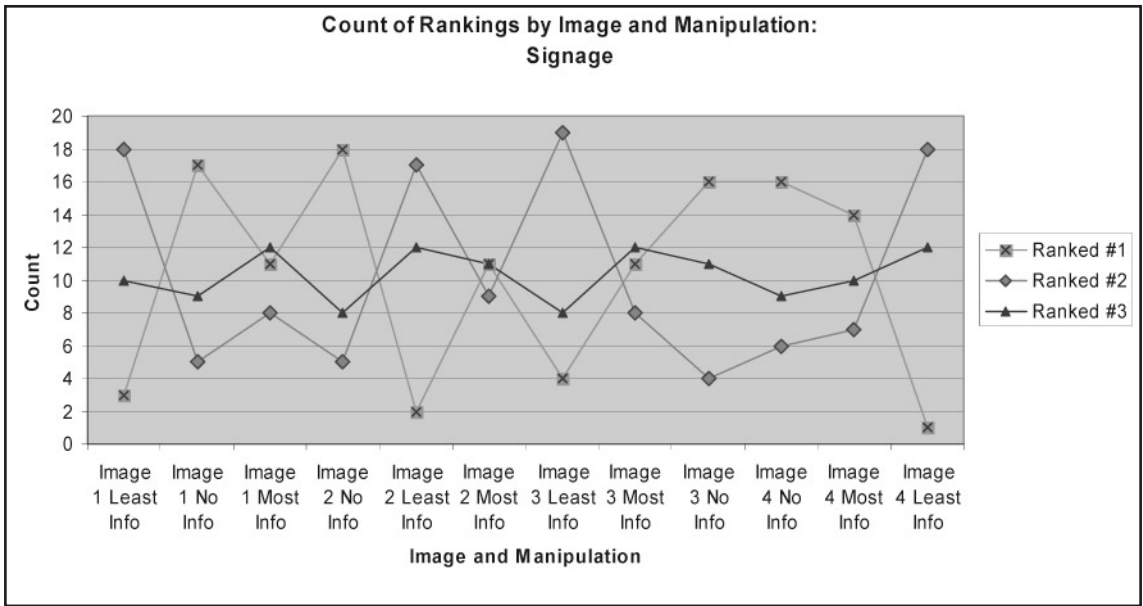


Figure 8

Image Set 2 – Presence of Art

This image set sought to test the response of observers to elements of art incorporated into productive land uses. We selected examples of so-called “High” art and Cultural/Pop art to use in our manipulations.

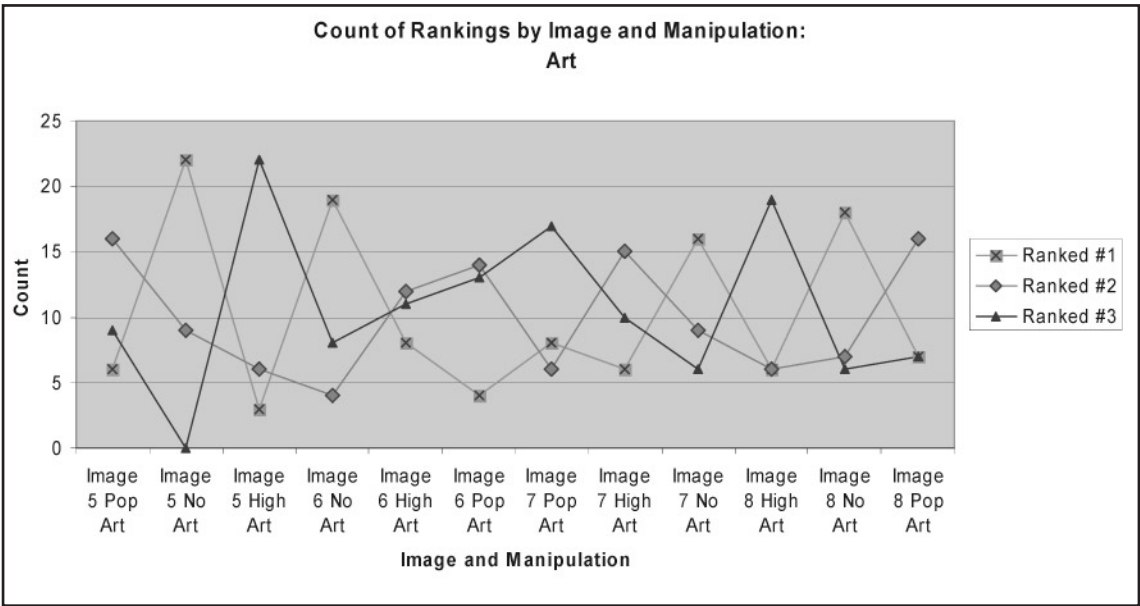


Figure 9

Image Set 3 – Recreational Use

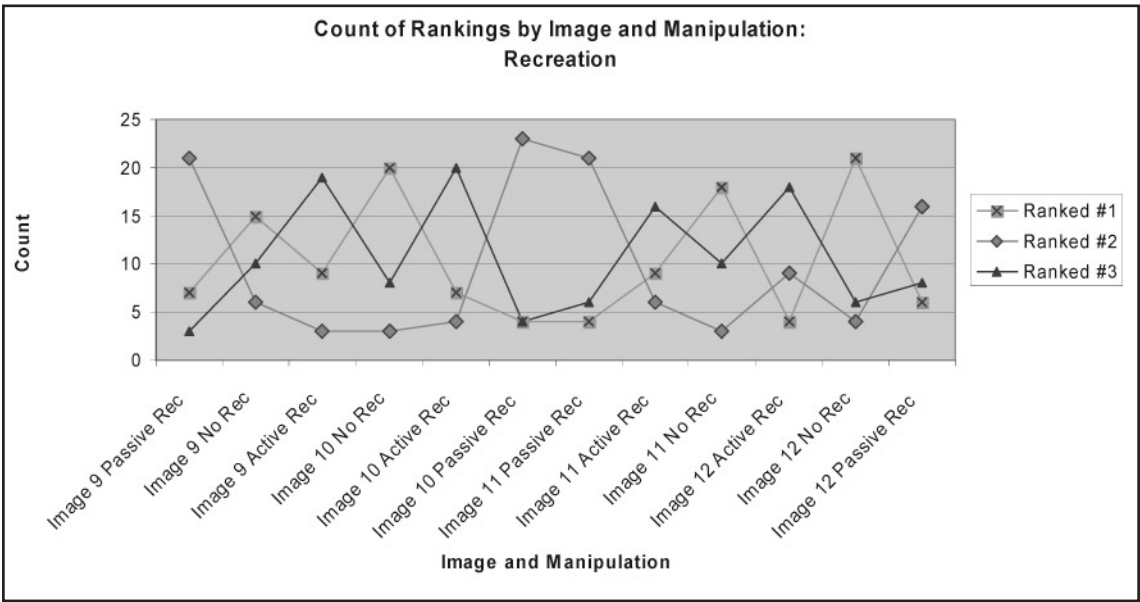


Figure 10

Image Set 4 – Apparent Age

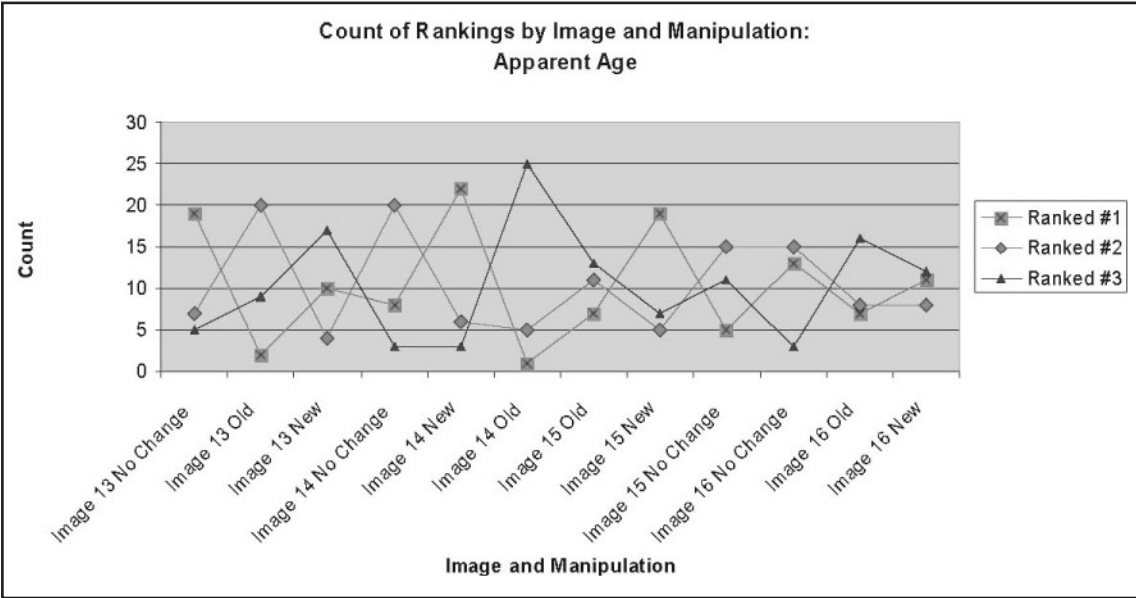


Figure 11

Image Set 5 – Materials

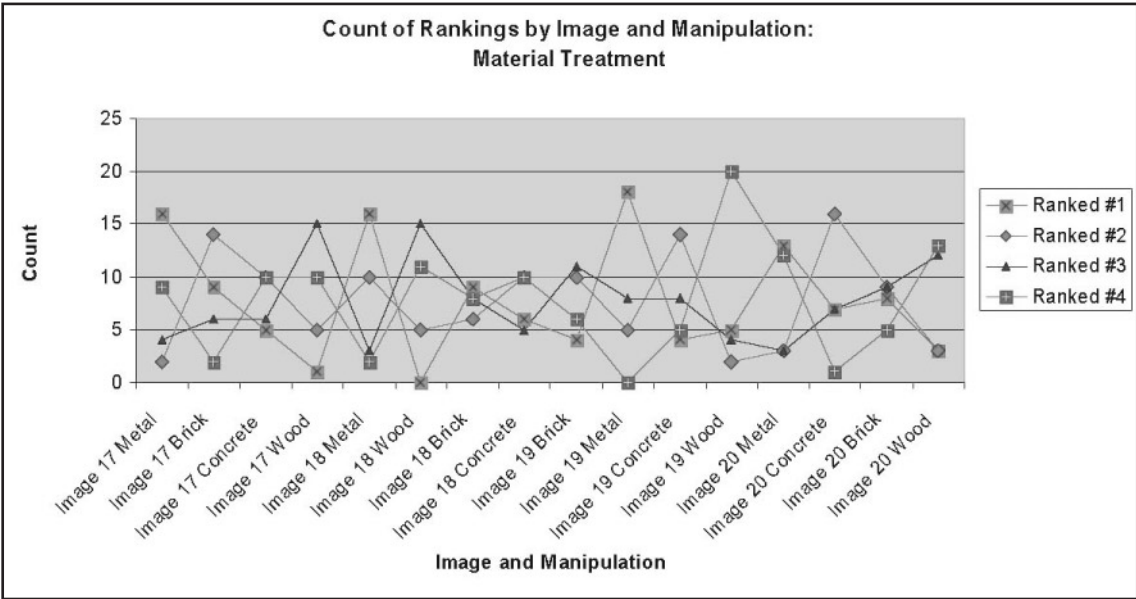


Figure 12

Image Set 6 – Colors

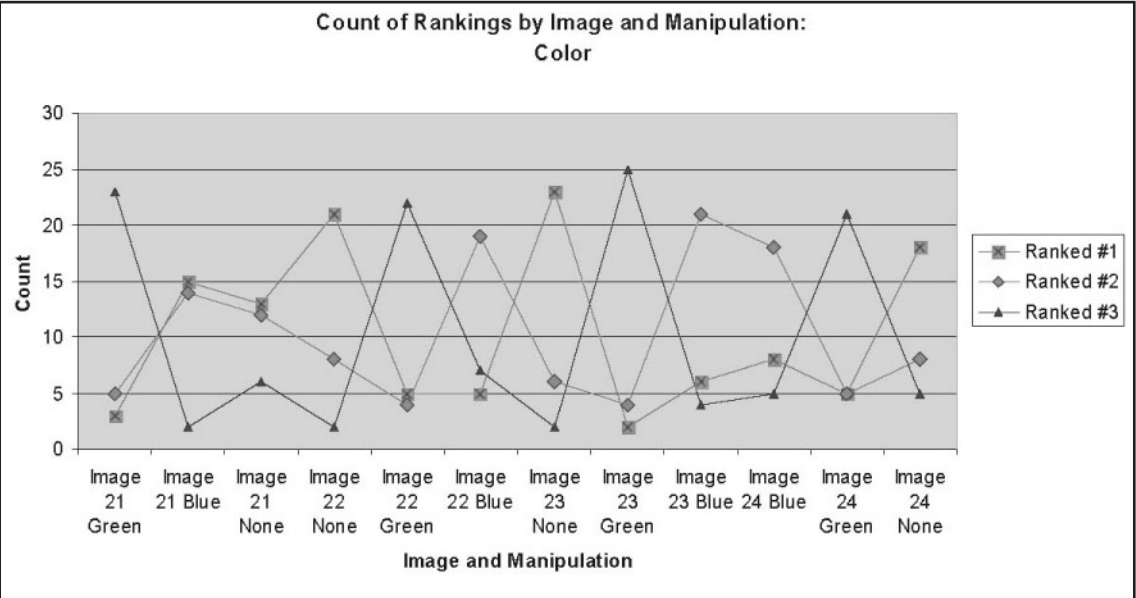


Figure 13

Summation Tables

Reasons for Lowest Ranked Images				
	No. of A's	No. of B's	No. of C's	No. of D's
Image 1	17	3	3	7
Image 2	17	2	5	6
Image 3	14	4	4	8
Image 4	17	5	3	6
Image 5	20	5	3	3
Image 6	22	3	4	2
Image 7	17	8	2	4
Image 8	17	4	3	6
Image 9	12	10	5	4
Image 10	9	17	1	4
Image 11	6	17	4	4
Image 12	9	16	3	3
Image 13	21	1	5	4
Image 14	14	3	11	3
Image 15	14	7	8	2
Image 16	21	0	9	1
Image 17	11	7	9	3
Image 18	17	1	9	4
Image 19	18	2	8	3
Image 20	21	2	4	4
Image 21	19	2	7	3
Image 22	20	3	3	3
Image 23	19	4	4	2
Image 24	17	5	3	5
(A) Visually Displeasing				
(B) Threat to Human Health				
(C) Threat to the Environment				
(D) Other				

Table 3

RESULTS

Survey 1

With the first survey, we sampled 117 people in Franklin County. In comparison to the population data gathered from the 2000 US Census, the demographics for gender were compatible, with 49.5% males and 50.5% females. The distribution of ethnicity and age of the respondents was skewed. Of those individuals sampled 65% identified themselves as Caucasian. Further, more than half the sample population consisted of people 18 to 25 years of age. Also of interest, the majority of the respondents lived in suburban or urban environments, with only 9% living in the rural areas of Franklin County.

With the list of opposing adjective and suggestive nouns, the ability to define variables of focus became apparent by understanding the participants preconceived notions pertaining to the words. There is an apparent correlation amongst final tally of words which were preferred. The highest ranked words that more than 70 people thought were of sufficient agreeability were: Green (92), Natural (87), Tree (83), Nature (78), Flower (77), Sun (76), Quiet (73), and Blue (71). All of these have connotations implying the respect and want for nature and apparent natural settings. When looking at the inverse condition, the words Wasteful (78), Asphalt (60), Dull (59), Loud (58), and Weed (56) each seem to describe the more negative aspects of current living conditions in suburbia and the urban condition.

When observing the data for prior knowledge of industry, there seemed to be a lack of knowledge for mining, oil refinery, power production, and steel production. For these industries, there were 87% or more of the respondents that knew no one in the industry and/or were not a part of it themselves. This is a large contrast between those and the agricultural or construction industry where 40–45% of the respondents knew someone or were apart of the industry. When looking at the perception of the industries, it is interesting to see that power production, steel production, and construction are both perceived better then average at 6.2 with a deviation of +/-0.6. Agriculture had the highest rating at 8.14 out of 10. There seems

to be no direct correlation between knowing someone within the industry and the perception of the particular industry. The only conclusion that can be made is that there are lurking variables driving the perception of the participants.

The images of productive land use were individually rated and randomly placed in the survey to avoid bias. Our results indicated an arrangement of the images based on preference which shows a tendency to have the apparently “natural” images toward the top and the apparently human-engineered images toward the bottom. The one image that falls out of order in this series is the cityscape. The issue of passive production versus active production has a similar progression through a gradient of type of productive output. However, this trend is not as pronounced because some images lie outside the trend such as the cityscape, rail lines, and high-tension power lines. With this knowledge, it is possible to define the bottom half of the images into 4 general categories. These are extractive, refining/processing, power generation, and a conveyance productive land use infrastructure. One image chosen from each of these groups was used in the second survey.

Survey 2

Image Set 1 – Signage

The ranking of images for the variable of signage generally seemed to indicate people’s preference for land-uses devoid of signage (See Figure 8 above), then signage with some information, and lastly signage with all the production output displayed. An interesting observation made during this write-up, and from talking with survey respondents after-the-fact, is that the signs with little or no information were perceived by some as nefarious or secretive. The signs with some information contained the name of the business and one line of information regarding output, but were the same size as those we tested with the most information and thus contain blank areas where information was not displayed. Some of the respondents seemed to feel these signs were hiding something and thus ranked them the lowest, which contradicts the general trend, yet may be worthy of further investigation in future studies. This ties into

comments made by some of our respondents who said they wanted all the information, meaning the good and the bad such as how many accidents had occurred, how many acres of forest were bulldozed to construct the land-use depicted, etc. The respondents who made comments generally seemed to perceive the signs with the most information as an attempt to gloss over the negative affects of the land-use portrayed. Table 1 provides a summary of the ranking for the images involving signage.

Image Set 2 – Art

The respondents of the survey preferred land-uses with no art (either “high” or pop-culture) as depicted in Figure 9. There was no clearly ranked second choice. The results here seem to be somewhat inconclusive and may be the result of different, yet very specific outlooks on aesthetics of the respondents which Simon Bell (1999) argues can be overcome, thus more factors or lurking variables may account for the lack of a general trend. Perhaps the image manipulations were not executed well enough to adequately measure/test our variable of interest. Figure 9 depicts the lack of consensus amongst the respondents for this variable. There is also a trend that pertained to the type of art and whether the respondent understood the depiction to be art. When discussing the high art of the nuclear power plant one respondent commented on their distaste for alcohol since the high art image was a farce on the ideas of Claes Oldenburg and his over-size objects.

Image Set 3 – Recreation

When testing the integration of public recreational use with productive land-use most of the respondents seemed to prefer no recreational use or secondarily, passive recreational use. Many of the additional comments voiced concerns over the compatibility of human recreation and productive land-use; this is further confirmed by the large number of “B’s” (See Table 3) given for the reason of the lowest ranked image in Figure 10 which corresponds to the activity being a threat to human health.

Also of note is the high number of respondents who responded to the petroleum refinery and justified

their ranking of the lowest image with “A” (they found it visually displeasing). This most likely was due to the lack of greenery which was not present in the same proportions as in the other images and thus the image lost favor as in the case of some studies by Stephen Kaplan (1988) and others by Jack Nasar (1992). Another possibility, as mentioned in previous images of the afore mentioned phenomena, is failure of the investigator to adequately manipulate the image to effectively test the variable. If the manipulations were not well-executed they could have been perceived as unsightly. Please see Table 3 for statistics relating to ranking of the images.

A large number of comments were recorded pertaining to the depiction of hang gliding in the active recreation images which people seem to think is unsafe enough by itself, much less near power plants and factories. Future studies if undertaken should be careful to avoid testing active recreational use with the inclusion of such stigmatized activities as hang gliding. The depiction of this activity most likely affected the overall trend and ranking of the images; had a safer activity been portrayed our results may have been distinctly different.

Image Set 4 – Apparent Age

The next variable tested was apparent age of the land-uses. Most of the respondents seemed to prefer new condition or present condition, with the most disliked images being the aged or old land-uses. However, many of the respondents verbalized difficulty discerning differences in the images during the survey, especially the alterations involving the nuclear power plant (Figure 11 – image 15); this may have been due to print-related issues or ineffective image manipulation on the part of the investigators. Thus this data is more prone to error and inaccuracies than others. Another concern was the difficulty of determining age within the high-tension power lines images because they were unclear as to what the digital changes were referring too.

Image Set 5 – Material Treatment

We also tested material treatment in an attempt to discern if there was a predominate preference in our

culture and could thus be used to improve the visual perception of such productive land-use endeavors. Contradictory to our expectations many of the respondents ranked the image manipulations which appeared to be made of wood as the lowest of the image and more commonly metal was the preferred material, usually followed by brick and concrete. Of special note is image 18 in Figure 12 which is a manipulation of the sand mine. Unfortunately due to investigator error or problems during the print process the images do not read well on paper and may have contributed to error in perception of the image by the respondents. This may explain the ranking of wood in the images as both 3 and 4 for the cumulative average of the survey.

Some respondents also commented that the metal image manipulations were very visually appealing and thus may be a source of error in that the metal manipulations had more “flare” or “pizzazz” than the other materials and thus lent a bias to the survey, although entirely unintentionally as it was not our intent to make one material more visually appealing than the others. Future studies should seek to confirm these findings by attempting similar manipulations.

Image Set 6 – Color

This variable was included in our study in order to determine if respondents preferred specific colors for productive land-use in order to derive design guidelines. Most of the respondents preferred the original colors as can be seen in Figure 13, followed by the color blue, and lastly the color green. The color green seems to have received the lowest rating amongst all the images as the result of execution of the image manipulations. Many of the respondents who chose the reason “D” wrote comments noting that the green images seemed to glow which is the direct result of how color was applied to the images. Many people who participated in this survey, apparently associated glowing green with hazards to human health and the environment as the result of events such as nuclear fallout from a reactor malfunction. Future studies should re-examine this variable with more accurately executed manipulations to determine if any correlations exist. The findings for this variable in this study are currently inconclusive.

CONCLUSIONS

Survey 1

With the conclusion of Survey 1 we discerned a gradient of productive land uses from apparently “natural” to apparently human-engineered. This gradient of preference may not be due solely to the artificialness/naturalness of a land use but may also be influenced by a variety of other factors not examined in this study; generally we did notice a correlation between appearance and perception. Future studies should examine the influence of more perceptual/cognitive information so as to gain a more comprehensive understanding of the human aesthetic experience as advocated by Simon Bell (1999). The addition of these factors when assessing viewer perception of the environment can have profound effects; the image of the cityscape was ranked higher than other apparently human-engineered areas, which may suggest respondents were influenced by variables pertaining to cultural amenities. We recommend more open-ended questions and interview-style techniques for future investigations to help discern perceptual factors associated with the visual assessment of productive land-uses.

Along the gradient noted above between the apparently “natural” and apparently human-engineered we were able to discern a threshold. The distribution of ratings along the gradient was asymmetric so the median rating of the depicted land use was taken as the threshold. We then examined all the uses which were rated lower than the median and discerned four categories which encompassed those images depicted: mining/extraction, chemical processing/refinement, power production, and power transmission/infrastructure. These four categories provided the basis for our investigations in the second survey.

Survey 2

Signage

For all of the instances, respondents preferred the images that did not include signage. This may have been a function of poor digital manipulations, material or color of the sign, size of the sign, or other

visual elements of the photo manipulation itself. Respondents also expressed concerns about the type of information displayed on the signs, as well as the amount of blank space on the signs. Signs with a great deal of blank space seemed to imply that the industry was hiding something. Signs that gave more information received poor marks for giving only positive facts without showing any negatives. For future studies, the size of signage, its intrusiveness on the landscape, the type of sign, and the amount and type of information shown should all be evaluated.

Art

In most cases, respondents preferred images that did not contain art. This could be a function of digital manipulation or other possible factors, including public perception of what constitutes art and initial understanding that a given installation is meant to be art. For future studies, these factors should be investigated independently as well as in the context of industrial facilities to determine how much of the respondents' perception can be attributed to the art itself and how much to its presence in the productive area and human encroachment to the productive space.

Recreation

For many of the images, respondents preferred the images that showed no recreation. This indicates a perceived incompatibility between recreational use and productive land uses. This leads to the formation of other questions such as "Does the public dislike the idea of recreation in industrial facilities, or was there something about the photos themselves that made them unattractive?" – or – "What assumptions were people making?" This incompatibility may also pertain to perceived safety issues.

Many of the respondents commented on the apparently unsafe nature of some activities. Future studies should more accurately determine which activities are acceptable depictions prior to making the photo manipulations. Also, the type of activity portrayed may not have fit the context of the image, i.e. picnicking in tall grass at the sand pit. Future studies should analyze the effect of manicured vs. natural prairie conditions in association with recreation.

Material

In every manipulation, the majority of respondents preferred the use of metal as the material for the construction of the facility. In three of the four cases, this constituted the existing condition. This may indicate true preference for metal surfaces, although a follow-up investigation which uses larger images with clear detail of surfaces should be undertaken to ensure legibility of our survey images did not impact respondent preference. The results may also be due to the prevalence of metal surface used in the endeavors depicted within the actual world and thus respondents may just be accustomed to seeing productive land uses in which the structures are made from metal and any other material deviating from that could be perceived as alien or not belonging to the land use.

Age

For this variable, it was expected that most people would prefer the images that looked newer as opposed to weathered or dirty. This held true for two of the manipulations, but for the other two, the current state was preferred. These results could be a function of legibility, but they could also speak to deeper issues. For future study, the variables of contrast and complement should be added to see how important it is for the facility to blend in with the surroundings. Another possible future study could examine the context of these endeavors with two groups of people. One group would be shown aesthetic or artistic images of weathering and decay prior to the survey, and the other would not.

Color

In most cases, respondents preferred the images with no color manipulation. Public preference for the original condition could imply several things. It is possible that people understand industrial areas as they exist and superficial changes are perceived as superfluous. It could also point to the issue of deception: the feeling that these potentially environmentally dangerous land uses could be attempting to improve their image by fooling the public into believing them to be benign. For future studies, several steps could be taken to clarify the findings. A broad range of colors

should be tested, rather than just green and blue. Also, varying the quality of the colors through variables such as texture, chromaticity, saturation, luminance and value would be instructive. Most importantly, the survey design must be flexible enough to allow for a greater understanding of why people react to the variables in a given way. Ranking of photographs is one method, but it must be paired with in-depth questions on how the variables affect perception.

Some results of the second survey contradicted our initial expectations. It was expected that by altering the appearance of the productive land uses through use of color, material treatments, the presence of people, etc, public perception of productive land-uses would improve, but our results suggested for most of our variables, respondents preferred the unaltered images to the Photoshop alternatives.

We did confirm our initial postulate that productive land uses are of value to society as almost all respondents indicated the information pertaining to output on the signage manipulations was a positive fact. This was indicated by observations pertaining to the absence of "negative" information on the signs which many respondents felt the depicted land use was hiding something.

One tentative recommendation resulting from our analysis which can be made is to keep the design true to use. Form equals function! The public does not appreciate industry trying to hide potentially toxic or harmful activities with a visually pleasing mask or veneer. Perhaps if the design strategies have an integral link to the industry or are related to the innate public understanding of industry, the response to those design changes would be positive. This is another important question for further study.

Another result of our survey was the determination that colors of varying shades and hues along with textural treatments also affect viewer perception of productive land use as many respondents in survey 1 indicated they liked the color green, and our research indicated a preference for shades and textures of green in keeping with vegetation of the outdoor environment, yet many respondents in survey 2 rated the green manipulations to be the lowest. This suggests that prior to design landscape architects/architects

should undertake studies of texture and color of vernacular vegetation to better blend designs within the context of the environment since these have an affect on viewer perception and sense of aesthetics.

An unpredicted trend which emerged from the material manipulations was the consistent preference for metal surfaces over those of wood and brick. This suggests that many designers may want to reconsider their materials palette as many landscape architects currently strive to integrate materials such as brick or wood because of their more "natural" or warm appearance. This is further confirmed the popularity and success of recent projects by Frank Gehry. In our current society the preference for technological gadgets may be exerting some influence on our preference for buildings and outdoor environments which has manifested itself through the preference for metallic surfaces to those of brick or wood. Further studies should seek to confirm this observation.

Future studies should also examine the influence of precedent on perception of productive land use. This could be accomplished by surveying a control group and an experimental group. The control group would be shown images of productive land uses and asked to rate them, whereas the experimental group could be shown images prior to the survey which depict productive land use as having inherent aesthetic/artistic value and then asked to complete the survey. This would help improve our understanding of how people respond to and think about productive land use.

Yet another suggestion we have for future research is to create a full-scale installation where respondents would be led through a site and asked to respond to authentic interventions in real time and space via interview techniques. This would allow interviewers to identify the full spectrum of perceptual factors and their influence on perception of these land uses as they relate to landscape architectural design.

REFERENCES

Agnew, John and David N. Livingstone and Alisdair Rogers. *Human Geography: an essential anthology*. Cambridge, MA: Blackwell Publishers, 1996.

Alreck, Pamela L. and Robert B. Settle. *The Survey Research Handbook: Guidelines and Strategies for Conducting a Survey*. Burr Ridge, Ill.: Burr Ridge, Ill.: Irwin, c1995.

Bell, Simon. *Landscape: Pattern, Perception, Process*. New York, NY: Routledge, c1999.

Berger, Alan. *Reclaiming the American West*. 1st ed: Princeton Architectural Press, 2002.

Berleant, Arnold. *The Aesthetics of Environment*. Philadelphia: Temple University Press, 1992.

Carson, Rachel. *Silent Spring*. 40th Ann. ed: Mariner Books, 2002.

Chudacoff, Howard P, and Judith E. Smith. *The Evolution of American Urban Society*. 6th ed. Upper Saddle River, NJ: Pearson/Prentice Hall, 2005.

Creswell, John W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 2nd ed. Univ. of Nebraska, Lincoln: Sage Publications, Inc., 2003.

Fink, Arlene and Jacqueline Kosecoff. *How to Conduct Surveys: A Step by Step Guide*. Thousand Oaks, CA: Sage Publications, c1998.

Gablick, Suzi. *The Reenchantment of Art*. New York: Thames and Hudson, 1991.

Hartshorn, Truman A. *Interpreting the City: An Urban Geography*. 2nd ed. New York: Wiley & Sons, Inc., 1980.

Heft, Harry. *Ecological Psychology in Context*. Mahwah, NJ: Lawrence Erlbaum Associates, 2001.

Kaplan, S. Perception and Landscape: Conception and Misconception, in Nasar, J.L. *Environmental Aesthetics*, Cambridge, Cambridge University Press, 1988.

Kirkwood, Niall. *Manufactured Sites: Rethinking the Post-Industrial Landscape*. New York: Spon Press, 2001.

McHarg, Ian L. *Design with Nature*. Wiley, 1995.

McHarg, Ian L. and Frederick R. Steiner, eds. *To Heal the Earth: Selected Writings of Ian McHarg*. Island Press, 1998.

Moore, David S. *The Basic Practice of Statistics*. 3rd ed. New York: W.H. Freeman and Co., 2004.

Nasar, Jack L., ed. *Environmental Aesthetics: Theory, Research and Applications*. Cambridge [England]: Cambridge University Press, 1992.

Nasar, Jack L. *The Evaluative Image of the City*. Thousand Oaks, CA: Sage Publications, 1998.

Plowden, David. *Industrial Landscape*. New York: Chicago Historical Society & W.W. Norton & Co., 1985.

Roebuck, Janet. *The Shaping of Urban Society; a History of City Forms and Functions*. New York: Scribner, 1974.

Schuyler, David. *The New Urban Landscape: The Re-definition of City Form in Nineteenth-Century America*. Baltimore: Johns Hopkins University Press, 1986.

Sewall, Laura, PhD. *Sight and Sensibility: The ecopsychology of perception*. New York: Putnam, 1999.

A COLLABORATIVE
APPROACH TO
SUSTAINABLE LAND USE
PLANNING IN McHENRY
COUNTY, ILLINOIS

Finn, Donovan (University of Illinois at Urbana – Champaign, Champaign, IL)

ABSTRACT

Decision making about land use and development issues are complex and often contentious processes. Planners are tasked with mediating between conflicting voices in this process, although the ability and equipment to do so effectively are generally not fully integrated components of the planner’s toolkit. A resource protection planning process in McHenry County, Illinois presented an opportunity to develop, refine and apply some conceptual innovations in collaborative planning and sustainable decision making to the real world. We suggest that one challenge to developing truly collaborative planning is that knowledge dissemination and citizen input, and thereby leading to community capacity building and enhanced transparency, must be integral components of the process, even though we as a community of planners do not yet have a firm grasp of how to do these tasks. Seizing the opportunity to create a resource protection planning framework for the Illinois Department of Natural Resources, we proposed and carried out a planning process utilizing an overlapping set of tools, procedures and normative goals in combination to asses their utility in creating a refined and robust deliberation and decision-making framework for ecological protection and sustainable planning. This set of tools, including computer aided land use modeling, scenario planning, and a systematic approach to cataloguing, accessing and integrating existing plans

into the planning process are posited as part of a more holistic exercise of planning and deliberation. Each of these components, we argue, can be more powerfully used to facilitate sustainable planning if used in combination. The utility is derived chiefly from how the data from the three components is stored, accessed and used in a collaborative process. We illustrate how existing community resources, plans, goals, possible scenarios for the future and the potential impacts of those scenarios can all be developed, acquired and catalogued in such a way that they can be accessed by professional planners and citizens alike, thereby democratizing access to information and fulfilling one of the basic requirements for informed collaboration. Technology including computer aided models, GIS, the internet and a unique database of existing planning documents are combined in this framework to enhance community dialogue and facilitate more informed planning. Finally, processes for utilizing and analyzing data are explored, combining complex analysis with local expertise in an intuitive process to promote the ability of citizens to examine sustainable development issues themselves, even if they lack the training or tools of professional planners.

INTRODUCTION

Group decision-making regarding sustainable planning at the community level can be a difficult and contentious process. Multiple actors with varying degrees of expertise, power and assets compete over issues that can be abstract, complex and at times highly personal. Planning and development often pit short-term community needs, such as economic development, against more complex and indefinite goals; for example, environmental sustainability or natural resource protection. One role of planners is to mediate, facilitate and interpret these discussions to help find consensus on difficult issues. These tasks are not trivial or easy, and require the development of refined tools and techniques. This paper attempts to tie together at least three specific lines of inquiry within planning research and illustrate the degree to which they are overlapping and complementary to one another, in order to create a useful process for commu-

nity decision-making. A case study of recent resource protection planning efforts in McHenry County, Illinois serves as the basis for this examination.

In this exploration, a collaborative process, as opposed to a technically rational one, is proposed as the over-arching framework under which effective planning can, and should, occur (Forester, 1989; Healey, 1992; Innes, 1996). Ecological sustainability is posited as the functional principle to guide collaborative planning activity (Campbell, 1996; Basagio, 1999). An integrative process including scenario planning (Wack, 1985) and a “web of plans” approach (Hopkins, 2001), as part of a larger set of planning innovations, is advocated. Using a framework developed as part of a pilot project to assist resource protection planning in Illinois, we seek to illustrate how a computerized land use simulation model, a systematic approach to accessing and viewing existing planning documents, and a system for using all of these elements in combination can be used as a scenario planning tool to conduct more collaborative decision making, with sustainability as its explicitly normative goal.

SUSTAINABLE AND COLLABORATIVE PLANNING

In his article, “Green Cities, Growing Cities, Just Cities? Urban Planning and the Contradictions of Sustainable Development,” Scott Campbell (1996: 297) notes that planning for sustainability requires planners to, “combine both their procedural and their substantive skills and thus become central players in the battle over growth, the environment and social justice.” In the pilot project reported here, technical innovations rely on planners’ substantive skills in data collection and analysis. Concurrently, the ways in which data are presented to help citizens better understand the complex nature of development and the future impacts of today’s decisions engage planners’ procedural skills as mediators, facilitators and interpreters of a collaborative process. There is, of course, no guarantee that informing citizens about development issues and the tools available to promote sustainable development will lead, inextricably, to plans that endorse and engender sustainability.

However, I argue that when planners take up sustainability as a normative goal from the outset, the process outlined here is a useful way to work towards that goal in a holistic, efficient and democratic manner.

THE LINK BETWEEN SUSTAINABILITY AND LAND USE PLANNING

Since the era immediately following World War II, a chief characteristic of residential development in the United States has been the creation of low density, highly segregated land uses on a constantly expanding urban fringe, which, if left unchecked, threatens to deplete cities of their economic and social vitality while concurrently destroying increasingly valued natural and agricultural lands (Tregoning, et al., 2002). Powerful preferences, market forces and government policies have accelerated the pace at which American suburban development has consumed land for more intensive use and irreversibly affected critical resources (Danielson, et al., 1999; Hirschhorn, 2001). Typical suburban development decisions are primarily concerned with protecting private personal space, segregating land uses, and maximizing profit for private capital. Martens (2004), furthermore, suggests that these purely capitalistic systems of development do not currently have the capacity to consider the environmental impacts of development by dispersed private entities acting solely in the interests of profit.

Americans express a powerful preference for suburban living. In the last decade, as much as 80% of new housing construction in the U.S. has occurred on the edges of already-developed areas, and 60% of the U.S. population is estimated to now live in suburban areas (Hirschhorn, 2001). These preferences have powerful implications for growth patterns, particularly in light of the increase in the American population of thirteen percent (over 32 million people) between the 1990 and 2000 censuses. As the preceding statistics suggest, barring significant structural adjustments in the American economy or political environment current patterns of growth appear somewhat inevitable; thus, simply advocating for “no growth” is not a viable solution to the negative externalities of suburban development.

Planners and designers have attempted to create and popularize more sustainable alternatives to traditional development (for example, Duany et al., 2000; Arendt, 1996; Calthorpe, 1993, 2001, Van der Ryn and Cowan, 1996). However, these frameworks focus primarily on site and neighborhood scale planning with generally less emphasis on regional scale development. I argue that ALL of the decisions in the suburban development process, from macro level decisions regarding where development is permitted, to micro scale design decisions, are critical components of a more holistic process of sustainable development (Wheeler, 2000). Coarse scale regional land use decisions that protect existing resources or minimize negative development externalities at the regional level are the first step in developing a policy framework emphasizing more ecologically sensitive design, specifically in residential, commercial and industrial development.

SCENARIO PLANNING AS A ROUTE TO SUSTAINABILITY

For any given decision about how to act today there are multiple possibilities about how the future might play out tomorrow and planning is an attempt to guide action and prepare for these futures despite a high level of uncertainty (March, 1978; Alexander, 2000). Scenario planning (Wack, 1985; Ringland, 1998, 2002; Schwartz, 1991; van der Heijden, 1996; Avin and Holden, 2000) has been proposed as a potentially useful method for guiding actions by taking uncertainty into account and integrating multiple possible stories about how a community’s future may unfold. Instead of picking one desirable future, scenario planning allows users to guide action by accounting for more than just the expected or desired future. This method does not preclude the fact that a preferred future may exist, only that it is more useful to consider the desired future as just one among a set of possible futures. The key is not to be predictive, but to think creatively, inclusively and holistically.

Ringland (2002:3) explains scenario planning as learning to develop multiple visions of the impacts of today’s decisions,

“Providing a context in which managers can make decisions. By seeing a range of possible worlds, decisions will be better informed and a strategy based on this knowledge and insight will be more likely to succeed. Scenarios may not predict the future, but they do illuminate the drivers of change – understanding these can only help managers to take greater control of their situation.”

Scenario planning facilitates two important tasks:

1) planning holistically and strategically for a range of possible futures, and 2) planning tactically with a focus on minimizing the possibility that undesirable futures will occur by preventing the actions or circumstances that would drive those changes.

DEVELOPING TOOLS FOR PLANNING IN McHENRY COUNTY

One key challenge to regional planning is that practitioners must assemble, analyze and synthesize many disparate inputs to the planning process, such as existing physical conditions, economic trends, and so forth. Meanwhile, planners must work in tandem with citizens, most of whom lack the technical expertise or training that planners possess. Addressing this challenge was a core element of the pilot project to facilitate more sustainable land use planning in McHenry County, Illinois. McHenry is located at the north-western corner of the nine-county Chicago-land region, with its southeast corner lying approximately 40 miles from downtown Chicago. The 2000 US Census reported a county population of 260,077 as compared with 183,241 in 1990, a 30 percent increase in a decade. The regional MPO, the Northeastern Illinois Planning Commission (NIPC) projects the population in the year 2030 to be 449,823, or a 73 percent increase in a thirty year period. Mitigating or controlling effects of strong and visible suburban development pressure are at the forefront of much of the planning currently underway in McHenry County.

In 2004 the Illinois Department of Natural Resources (IDNR) chose McHenry County as the pilot area for a project executed cooperatively by NIPC and the Land

Build subway under Clinton Street between the Eisenhower Expressway and Lake Street in Chicago	Pg 132	Chicago Transit Authority	City of Chicago, Blue Line I
Expand Place line-haul service and community service to the existing Metra station in McHenry to compliment existing	Pg 14	Pace	McHenry, see diagram
Require a 100-foot wide landscaped buffer along IL 47	Pg 14	Village of Huntly	Village of Huntly
Expand Ackman Road to form lanes between Lakewood Road and Randall Road	Appendix C Pg 15	County	McHenry County, Ackman

Figure 1. Examples of items encoded in plan database.

Use Evolution and Impact Assessment Model laboratory (LEAM) at the University of Illinois at Urbana-Champaign. Pursuant to the Illinois Local Legacy Act of 2004 (Illinois General Assembly Public Act 93-0328), the IDNR's initiative was to develop a useful, replicable and streamlined process for the state's 102 counties to develop Local Legacy Plans capable of helping to protect each county's existing natural, agricultural and cultural resources. The system developed under this mandate places emphasis on informed land use decisions, participatory dialogue, integrative information management and holistic decision making as part of a sustainable planning framework.

The first component of this system as outlined by the IDNR was the collection of resource inventories, or the existing conditions for the region. In our pilot project, the planning process was focused on protecting natural, agricultural and historic/cultural resources. In order to create a viable record of these resources, area stakeholders assisted in compiling a set of jurisdictional boundaries, land cover data, high quality habitat areas, wetland information, prime agricultural soils, areas of high archaeological potential, historically significant structures and numerous other resources. Inventories of these data were created and stored as GIS layers.

The second component, the Information System of Plans (ISoP) was inspired by the work of Hopkins (2001), in which individual planning documents are considered part of a larger universe of plans affecting a region or an issue at any given time. The ISoP for this project is a database of the plans and regulations affecting McHenry County, such as countywide regulations, municipal land use plans, regional transportation plans, and others. In order to access the intent and scope of plans, they were deconstructed and catalogued as maps and the textual content of each plan was encoded as a searchable database (Figure 1).

LEAM (Land use Evolution and impact Assessment Model) is the hybrid computer model running on a National Center for Supercomputing Applications (NCSA) supercomputer used to generate land use change projections for the study area over the next 30 years. LEAM utilizes regional and cell based drivers to project land use change at annual time steps, generating maps showing possible land use change patterns in the presence or absence of specific predefined conditions (for a more detailed description of LEAM, see Deal, 2001). Impacts of land use changes, such as water quality and runoff quantity, can also be calculated. Basic output of the LEAM model for a given scenario (that is, a given combination of possible actions inserted into the model as drivers or constraints of land use change) is a map showing existing development and land cover overlaid with a pattern of grid cells (each one equal to approximately 1/4 acre) showing the residential and commercial development projected by the model (See Figure 2). For this project, five scenarios were modelled and the land use change maps stored as GIS layers.

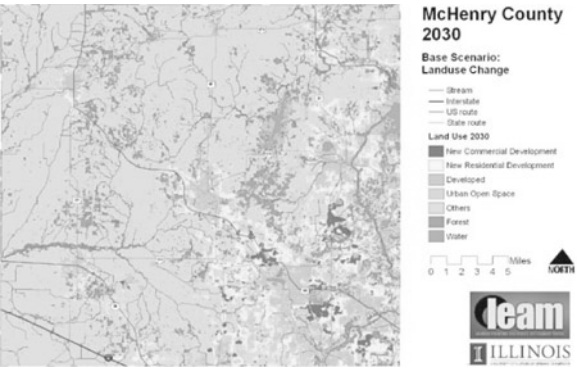


Figure 2. Base case LEAM land use change projection for McHenry County in 2030. (New residential development in white; new commercial development in black.)

The previous three components form the backbone of this system. Resource Inventories supply information about existing conditions and assets. The ISoP elucidates the region's goals and the proposed strategies for their attainment. The LEAM model acts as a scenario planning tool illustrating possible futures for the region. The operative concept behind this project is that these three discrete components, each possessing a substantial degree of individual utility, can be used most powerful as facilitator of public dialogue when used in combination. The utility is derived chiefly from how the data from the three components is stored, accessed and used in combination. The Legacy Data Center, an ArcIMS based repository of the resource inventories, plans and land use projections, allows stakeholders to access over 75 data layers through a web-based interface navigable by anyone with rudimentary web skills. We consider the Data Center an important avenue for disseminating information crucial to collaborative planning, helping to facilitate what Gordon and Richter (2003) have called an "e-democracy" of enhanced citizen participation through technology.

These tools are designed to supply planners and stakeholders with a set of useful information that they can access in conducting planning tasks, writing plans or deliberating about the decisions that inform the plans. Analysis conducted with these tools raises questions such as: What resources do we protect? Where do we protect them? When do we need to do it? The goal is not to help planners provide "answers;" rather, to raise questions, generate informed debate and help make hard choices in a collaborative way to avoid unintended consequences of unplanned development.

Based on guidelines for conducting landscape suitability analysis offered by Ian McHarg in his seminal work *Design with Nature* (1969), two primary methods – impact analysis and comparison analysis – were developed for facilitating these discussions. Impact analysis is conducted within the LEAM modeling environment by calculating potential impact of development on specific resources. In McHenry County, LEAM Scenario 2 (construction of a new interchange at I-90 and state route 23 in McHenry County), for instance, pulled new development from the eastern part of the county towards the hypothetical interchange in the southwest corner. The

resulting development pattern places more stress from potential development on hydric soils in the southwest part of the county than they experienced under the base scenario (Figure 3). Using these types of illustrations, the differing impacts of development under multiple scenarios can be illustrated to stakeholders.

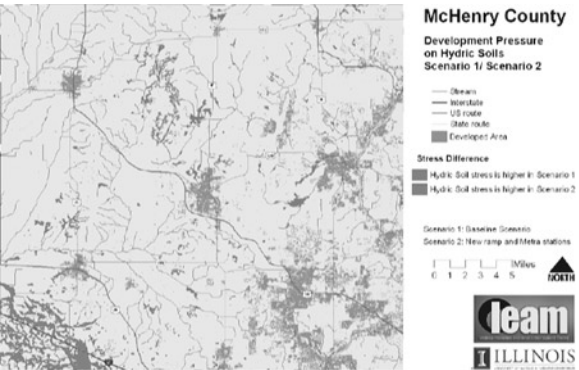


Figure 3. Stress analysis illustrating whether development probability is greater on land surrounding hydric soils in McHenry County LEAM Scenario 1 (white) or Scenario 2 (black).

The second type of analysis, comparison analysis, extrapolates from the work of McHarg as well as Tufte (1997), and can be conducted through the Data Center interface. Planners or stakeholders can visually compare multiple components of the Resource Inventory, the ISoP and LEAM model output to look for possible conflict or complementarities between and among plans, existing resources and land use projections. Figure 4, for example, shows Comparison Analysis comparing existing municipal plans for Marengo, Huntley and Woodstock, IL, with LEAM land use change projections and high quality natural resources. Simple visual comparisons illustrate a few key issues. The future land use map for Huntley appears to address protection of the high quality Kishwaukee River corridor on the northern edge of the village. Much of the Kishwaukee corridor to the west of the village is under protection through state ownership, land conservancy trust or other protection; however there are gaps in this protection. Finally, the LEAM model projects that commercial and residential development will be attracted to are exactly those portions of the Kishwaukee corridor that are currently unprotected.



LEAM projects residential development on unprotected sensitive areas
Figure 4. Comparison Analysis showing Huntley (IL) future land use plan, LEAM land use change projections and protected natural areas.

What is the utility of these observations? In the context of developing the McHenry County Legacy Plan, protection of the Kishwaukee could become part of the Legacy Plan if vetted by a public collaboration process that determines this to be an important action. Likewise, if the potential growth in the unprotected areas is determined by stakeholders to be undesirable, this issue would become a part of the plan for which some type of ameliorative action would have to be proposed and debated.

Obviously, training in land use planning can be useful for this type of analysis. Our preliminary use of this system suggests, though, that untrained citizens can quickly and viscerally develop an eye for finding potential issues and conflicts. This process combines the skills of technically trained planners, who compile data and generate tools to be used in the process, with the local knowledge of residents and stakeholders in the planning area. Comparison analysis derives its efficacy from being able to illuminate important issues that might otherwise go undetected, and does so in a straightforward and intuitive way. We propose that the type of deliberation and information sharing outlined here can be particularly useful in facilitating

collaborative planning for sustainability by assisting communities in developing frameworks for more sustainable regional land use planning. This free exchange of useful knowledge to all stakeholders in the planning process is a first step in creating a shared sense of understanding about our communities and the issues that face them.

FURTHER WORK

The Legacy Planning pilot project in McHenry County has allowed us to operationalize a first prototype of an Information System of Plans (ISoP) and use it to conduct real planning exercises using existing and timely cases. Some hurdles, however, must be addressed. The ArcIMS Data Center has been a powerful and useful tool to organize and display information, but we are cognizant of the fact that despite its seeming ubiquity, the internet is still not readily available to many individuals and to entire segments of society, so over-reliance on this tool could have the danger of creating what Alfasi (2003) calls a “false” democracy. Additional ways to disseminate information and communicate with stakeholders must be developed. The LEAM model can likewise be viewed as either a useful tool for illustrating possible futures or as a technically ominous “black box.” This latter view is counter-productive to our intent because it minimizes the importance of citizen involvement, deliberation and planning that is more transparent and holistic.

CONCLUSION

The McHenry County Legacy Planning project was an attempt to create a framework for more sustainable planning by increasing local stakeholder capacity through knowledge dissemination, education and facilitation of discussion about conflicts between development and resource protection. To address these issues, we proposed a process to open the planning process up to a wider community of decision makers and simplify the presentation of technically sophisticated data through land use modeling, a systematic approach to viewing and using plans, and the use of scenario planning as drivers of broad public deliberation.

Although more work is needed to refine these tools and processes, stakeholders that we have engaged with appear to grasp intuitively the nature of sustainable development issues and how the tools illustrated here can be used to address them. More work is needed to ascertain what, if any, is the connection between processes that educate and empower citizens regarding sustainable planning and the ability of communities to actually move toward acting more sustainably. Scenario planning and comparison analysis appear to be useful for engendering discussion and debate about development. The System of Plans approach and the Legacy Data Center allow citizens to access a wide array of data to enhance their knowledge about issues being discussed, or to discover new issues that they can bring to the table themselves. Using these tools has the capability of helping citizens become more informed about the complex issues facing their community and arming them with knowledge to ask and address difficult questions.

Building citizen capacity to debate and understand complex issues of development will likely not be enough, on its own, to create more sustainable communities. However, a transparent, collaborative, evolving and iterative process is, I feel, a fundamental requirement of that process. To that end, a driving force behind the project outlined here has been to develop tools and frameworks that increase the ability of planners to facilitate more sustainable decision making by harnessing both the substantive and procedural skills that Campbell (1996) reminds us are the dual attributes of effective planning.

REFERENCES

- Alexander, E.R. (2000). Rationality revisited: Planning paradigms in a post-postmodernist perspective. *Journal of Planning Education and Research* 19:242–56.
- Alfasi, N. (2003). Is public participation making urban planning more democratic? The Israeli experience. *Planning Theory and Practice*. 4:2.185–202.
- Arendt, R., (1996). *Conservation Design for Subdivisions*, Washington DC: Island Press

Arendt, R., (1999). *Growing Greener: Putting conservation into local plans and ordinances*.

Washington DC: Island Press

Avin, U., & Holden, D. (2000) Does Your Growth Smart? *Planning*, 66:1. 26–29.

Basiago, A. D. (1999), Economic, social, and environmental sustainability in development theory and urban planning practice, *The Environmentalist* 19, 145–161.

Calthorpe, P., (1993). *The Next American Metropolis: Ecology, Community, and the American Dream*. New York: Princeton Architectural Press.

Calthorpe, P. & Fulton, W. (2001). *The Regional City: Planning for the End of Sprawl*. Washington, DC: Island Press.

Campbell, S. (1996). Green cities, growing cities, just cities? *Journal of the American Planning Association*, Summer, 296–312.

Danielsen, K.A., Robert E. Lang, R.E., Fulton, W., (1999). Retracting Suburbia: Smart Growth and the Future of Housing, *Housing Policy Debate*, 10 (3), 513–540.

Deal, B. (2001) Ecological urban dynamics: the convergence of spatial modeling and sustainability. *Building Research & Information*. 29:5. 381–393.

Duany, A., Plater-Zyberk, E., & Speck, J. (2000). *Suburban Nation: The rise of sprawl and the decline of the American dream*. New York: North Point Press.

Forester, John (1989). *Planning in the face of power*. Los Angeles: University of California Press.

Gordon, T.F and G. Richter, (2003). Discourse Support Systems for Deliberative Democracy. In R. Traunmüller & K. Lenk (Eds.). *Lecture Notes in Computer Science: Electronic Government: First International Conference, EGOV 2002, Aix-en-Provence, France, September 2–5, 2002, Proceedings*. (pp. 248–255). Berlin: Springer-Verlag.

Healey, P. (1992) Planning through debate: the communicative turn in planning theory, *Town Planning Review*, 63(2), pp. 143–162.

Hirschhorn, J., (2001). Environment, Quality of Life, and Urban Growth in the New Economy. *Environmental Quality Management*, 10(3), 1–8.

Hopkins, L.D. (2001). *Urban Development: The Logic of Making Plans*. Washington, DC: Island Press.

Innes, J.E. (1996). Planning through consensus building: A new view of the comprehensive planning ideal. *Journal of the American Planning Association* 62(4):460–473.

March, J.G. (1978). Bounded Rationality, Ambiguity, and the Engineering of Choice. *Bell Journal of Economics*. 9:2. 587–608.

Martens, K. (2004) Participatory Decision Making and Sustainability: The Role of Environmental Organizations. In E. Feitelson (ed.), *Advancing Sustainability at the Sub-National Level: The Potential and Limitations of Planning*. Burlington, VT: Ashgate.

McHarg, I. (1969) *Design With Nature*. New York: Doubleday.

Ringland, G. (1998). *Scenario Planning: Managing for the Future*. Hoboken, NJ: John Wiley and Sons Ltd.

Ringland, G. (2002). *Scenario Scenarios in Public Policy*. Hoboken, NJ: John Wiley and Sons Ltd.

Schwartz, P. (1991). *The Art of the Long View: Planning for the Future in an Uncertain World*. New York: Doubleday.

Tregoning, H., Agyeman, J. & Shenot, C., (2002). Sprawl, Smart Growth and Sustainability. *Local Environment*, 7(4), 341–347.

Tufte, E.R. (1997). *Visual Explanations: Images and Quantities, Evidence and Narrative*. Cheshire, CT: Graphics Press.

Van der Heijden, K. (1996). *Scenarios: The Art of Strategic Conversation*. Hoboken, NJ: John Wiley and Sons Ltd.

Van der Ryn, S. & Cowan, S. (1996). *Ecological Design*. Washington DC: Island Press.

Wack, P. (1985) *Scenarios: Uncharted Waters Ahead*. Harvard Business Review 63 (5) 72–79.

Wheeler, S.M. (2000). Planning for Metropolitan Sustainability. *Journal of Planning Education and Research*. 20:133–145.

LOW-COST MEASURES FOR ENVIRONMENTAL RE- NEWAL THROUGH DIRECT TECHNOLOGICAL TRANSFER

Pollak, Stefan (*Università degli Studi di Roma 3, Rome, Italy*)

INTRODUCTION

One of five people on our planet is living in neighborhoods considered “slums”, “bidonvilles”, “favelas” or “shanty towns”. These terms are used to describe informal settlements characterized by irregular low-cost and self-constructed housing generally built on terrain seized and occupied illegally¹.

The present paper is based on an analysis of on-going policies in the field of settlement and habitat. On this theoretic base a possible intervention scheme is proposed which uses local skills, knowledge transfer and international partnerships as opportunities for environmental requalification actions. Specifically some building hypothesis are investigated in order to evaluate in how far technological approaches developed in and for European contexts can be applied or reused within the said realities of informal settlements.

BACKGROUND – POLICIES & DECLARATIONS

In the last several years the discussion on habitat has shifted from the problem of housing delivery, generally linked to the word “shelter”, to a more complex view on living environment. Analyzing official declarations from a few decades ago such as the first UN-Declaration on Human Settlements from 1976 (Vancouver-Declaration) and comparing them to newer documents such as the second UN-Declaration on Human Settlements from 1996 (Istanbul-Declaration) or the Millennium Development Declaration (New

York 2000) shows some new ways of approaching the settlement issues or at least some good intentions.

Through the 7th of the eight Millennium Development Goals, “ensure environmental sustainability”, the UN recognizes that having a roof for everyone is not enough for our planet’s living conditions. By 2020 significant improvement in the lives of at least 100 million slum-dwellers shall be achieved². The complexity of the problem seems to be recognized.

Another sensitiveness that arose in the last years concerns the possibility of upgrading instead of relocating (United Nations, 2003). Mass housing has actually not solved the problem of living conditions in southern cities as in most cases the demand for houses increases proportionately to the subsidized provision of houses (Hamdi, 1995).

All of the analysed documents have structural correspondence: they all start from the survey of problems, or – as the founder of the Mega-Cities Project, Janice Perlman (2005) would say – are “deficit-based”. She remarks that those approaches create “a kind of paralyzing despair and despondency rather than an energizing sense of hope” and suggests turning our perception to what is possible, taking advantage of the creativity of the people (Perlman, 2005:1).

Intervening directly within existing settlements instead of relocating the inhabitants into new-built units seams to guarantee good results from an economical, environmental and social point of view. Keeping social structures such as neighbourhoods and facility networks intact allows inhabitants to rely on their own resources in terms of productive capacity, competence and skill, in order to introduce “virtuous impulses” on the ongoing processes of spatial transformation.

As Peeters and Osman (2005) say “the transformation of informal settlements into quality neighbourhoods with socio-economic strength, will not only benefit the target population but will also strengthen society as a whole.” Specific programs, such as the Favela-Bairro program launched in 1993 by the municipality of Rio de Janeiro, focus exactly on this aim and are now being scaled up to a national level in Brazil, South Africa and other countries (Inter-American Development Bank, 1998).

Moreover, these official declarations seem to internalize the inhabitants' experiences of participative decision making. The contribution of NGOs (non-governmental organizations) and CBOs (community-based organizations) have been generally recognized. Numerous approaches have been developed and applied regarding questions of land tenure and related property changes, as well as, new financing procedures. A very strong focus has been posed on micro-lending.

Achieving environmental quality from a technological point of view in these situations appears to be rarely investigated. The present paper aims to contribute to this discussion.

APPROPRIATE TECHNOLOGY

A rapid linguistic remark shows us that the discussion on technology can not lead to conclusions without looking at a specific context: we only can judge something "appropriate" if we know "to what or to whom" it shall be appropriate. That's the reason why all actions should refer to a specific geographic, economic and social context.

Nonetheless, some general observations can be given. The UK-based NGO *Practical Action* (2005) (formerly the Intermediate Technology Development Group) defines "appropriate technology" as a technology "that enables people to satisfy their basic needs while making the most of their time, capabilities, environment and resources." Some criteria must be fulfilled, according to the ideas of *Practical Action* (2005), to consider interventions as "appropriate"; they must:

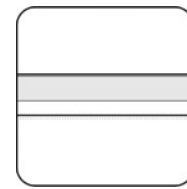
- Meet the needs of both women and men;
- Enable people to generate income for themselves and their family;
- Have the possibility to be designed, improved, managed and controlled by local people;
- Be affordable;
- Use local skills and materials as much as possible; &
- Have a limited impact on the environment.

As said above, actual technical solutions should refer to specific contexts and will only succeed if economic, climatic and cultural peculiarities are considered. Thus looking at those technological items which can be valid in several contexts certainly is a reduction on the lowest

common denominator but can also help to provide focus to some transferable questions. Further considerations on technological transfer will follow in the next chapter.

Some technological measures can be classified as "low-cost" or "no-cost" as they mainly focus on aspects of configuration. How can I achieve better results just by assembling the same resources in another way? In the present considerations the cost factor is referred only to material costs while there could be costs for the production and the dissemination of information and knowledge. These costs for studies, calculations, surveys, etc. are considered to only be acceptable if the results generated are offered to the global community and applied to more than one situation. Labour-intensive technologies are typically selected for these settings as the availability of manual labour as a resource is generally high.

MATERIAL QUALITY/LAYERING



Material quality can be only considered "no-cost" if we look at different stratification options or junctions of usually employed solutions. Protection against hu-

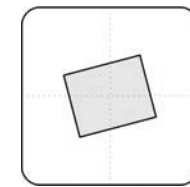
midity in building materials is one case where the same material, a timber column for example, can experience an improvement in durability by several years just avoidance of direct contact with the earth – same material, same cost, different assembly. The same can be said about protection of building components against rain. In most cases very simple measures of covering or hiding exposed surfaces avoids the moisturing of walls and structural elements which offers benefits in the field pertaining to inner-climate and hygiene in addition to durability. The sun-reflective capacity of some materials can be improved by simply turning the inside out and vice versa.

More frequently extra-costs are necessary in order to improve small-scale aspects such as water-resistance or thermal behavior. Choosing a species of wood which is not attacked by insects is probably not the cheapest solution but often avoids the deterioration of the whole building. Special coatings or infill materials can also act as barriers against water, thermal trans-

mission and/or solar irradiation. Examples can range from extra-reflecting clear paint which prevents overheating to insulation materials which protect against thermal dispersion. Adding such measures to normally employed construction materials and components raises the costs, which can become a serious problem in the context of informal settlements. In such cases decisions should be based on a cost-benefit evaluation.

Some measures or calculation methods exist which can be applied to specific construction and material solutions in order to evaluate and choose among them more effectively. Anette Greef (2005), for example, calculated the U-value for separation panels made of recycled materials to be used in the construction of social housing projects in South Africa. Direct tests can be performed on specific low-cost components using existing measurement tools in research centres all over the world. In other words, in some cases a high level of knowledge production may make up for a modest level of material quality.

SOLAR ORIENTATION



Other measures or characteristics can be considered totally "no-cost". Solar orientation only focused on how a volume is located (or rotated) on the site or at what distance the volume is placed from other forms in order to achieve the desired shading effects. Decisions on how to place a building in relation to the sun and to other objects within the context should involve considerations of thermal behavior (infrared irradiation) and daylight (visible irradiation).

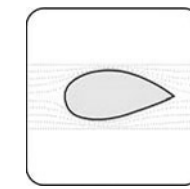
Irradiation is a rather simple geometric problem which can easily be calculated using a sun-chart which helps to determine the angles of incidence of the sun depending on latitude and time. The obtained results can be used without great difficulties to control simple models of the planned intervention, physical or digital.

The same can be said for the material quality of shading screens. Providing shade has very simple material requirements; often vegetal materials such as woven grass or tied fibres suffice. The best way to

evaluate shade performance is to work on 1:1 prototypes of such surfaces.

In order to guarantee environmental comfort, these observations have to be compared with specific information on habits and user's needs. At what times would it be considered an advantage to have direct sun and when would it be better have shade? Such issues go beyond technology and can only be solved through on-field planning under the direct collaboration between end-users and external experts.

NATURAL VENTILATION



Like solar irradiation, natural ventilation is mainly controlled through the relative positioning of building components. The configuration of building components either generally generates or prohibits air-flow. The control of aerodynamic phenomena during the design phase is less intuitive than in the case of the sun where conventional knowledge has us considering all sunrays reaching the earth as parallel and reduces the problem to a simple geometric relation.

Aerodynamic considerations require more complex calculations with a consequently higher risk of error. The same problem is solved with physical models. Empirical investigations can be made on scale-models within a wind-channel but building up a realistic model of the context is not very easy and errors can completely contradict expected results. On the other hand consciousness and instrumentation in this field is rising and, as we already said, there can be cases where spending more on the production of information can be justified, especially if it generates replicable results and leads to increased benefits without increased material costs.

In many cases, especially among small scale and low-tech interventions, it is possible to create controlled trial and error processes. In other words, the building site itself becomes a prototype. From a contemporary engineering point of view this may appear as an ineffective approach because it can require doing things several times. In specific contexts, especially in overcrowded informal settlements, basing solutions

on a high amount of labour is often an issue and can make up for other deficits.

Numerically controlled and empirically tested processes are based on the same physical principles. The involved benefits are mainly climatic comfort and improved hygienic conditions which both rely upon air-exchange. The possibilities of interventions could be classified in the following way:

1. Intervening on existing fluxes
 - a. By deviation
 - b. By concentration

2. Triggering of convective fluxes

Intervening on existing fluxes by deviation refers to the possibility of using screens or other obstacles to regulate air fluxes in and around a certain environment. This can be used either to encourage breezes towards the used spaces (as it happens with the Egyptian Malqafs) or to deviate an existing wind elsewhere in order to have a protected and thus more comfortable space.

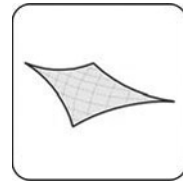
Existing air fluxes can also be reinforced using the aerodynamic principles of the Venturi-effect: When a certain quantity of fluid has to pass through a bottleneck situation its flux-speed has to increase due to the principle of conservation. This generates a depression in this zone which absorbs more fluid from nearby or intervenes on existing fluxes by concentration (1b). Several contemporary architects, Thomas Herzog and Sauerbruch & Hutton among them, are using spoilers on the top of their buildings in order to generate such an effect.

The triggering of convective fluxes cited under point 2. requires a difference of temperature. In some cases this can simply be achieved by shading a window and having another one exposed. Another, more complex, possibility is to activate a stack effect within a chimney. This is particularly effective in buildings with two or more stores.

Another aspect which makes aerodynamic modelling difficult is the low constancy of existing wind situations. Fluxes can change in direction and intensity during the day and often even from one moment to another. This makes it necessary to think about simple possibilities of re-configuration during use which, can range from simple movable screens to more complicated openings or closures. Generally

some predominant wind directions are recognizable and the design can rely upon these data.

STRUCTURAL SCHEMES



The economic and environmental implications of structural choices are often underestimated which leads to an uncritical reiteration of very similar solutions all around the globe. Generally houses are built of concrete or wood with some contexts using brickwork. The conventionally used stereometric forms may be rather effective as for their possibility to be stowed and aggregated. On the other hand basing structural performance on linear or planar components such as beams and walls means that these elements have to work under flexion with a higher amount of material required.

The most effective structures in regards to their relation between used material and covered span have a double-curved surface, either tensile structures or compressed structures. The working principle of tensile structures or compressed structures involves the whole structure in order to avoid flexion loads, which results in the loads such structures are required to carry are pure normal loads that can be contained in very thin membranes.

Both types of double curved surfaces, tended and compressed ones, can be either continuous or meshed. This can lead to the following classification of lightweight-structures:

1. Tensile structures
 - a. Closed membranes
 - b. Cable nets
2. Compressed structures (shells)
 - a. Continuous shells
 - b. Mesh shells

As mentioned, lightweight structures can not achieve the density stereometric building volumes can. On the other hand, it is interesting to note that, especially in tropical climates, it is useful to have a graduation in space closure. The wide angles of a tensile roof can cover comfortable semi-confined spaces which can be used as places for communication or work even if they are not actually considered to be inside.

In a framework of participatory environmental re-qualification, using lightweight structures has a double value. Using less material to resolve a spatial task is *per se* an environmental improvement as less embedded energy is spent for the realization of the building. This is even truer if the employed materials are renewable or recycled. In addition, we found lightweight structures to be more suitable to welcoming untrained persons onto the building site and to benefit from their contribution. The single building components can be lifted and manipulated directly by a few persons without any difficult apparatus or complex machinery; in this way security problems are also much easier to manage than on conventional building sites. Lightweight structures are also more conditioned by physical laws than conventional buildings. At a first glance this may appear as a constraint or difficulty. Actually having some natural constrains helps in a trial and error process with untrained persons because it makes decisions on configuration more intuitive. The large use so-called “primitive” cultures make of lightweight structures supports this notion. The beautiful domes of branches and leaves built by the Pygmies in equatorial Africa serve as an example (de Foy, 1984).

PARTNERSHIP APPROACH

The preceding chapters illustrate how successful solutions can be based on simple creative ideas. At the same time it is often underestimated that these ideas can only succeed if they interact directly with the larger surrounding contexts. Technological transfer from those contexts which have an easy access to knowledge, such as universities or large non-profit organizations, towards a target group is only one, though fundamental, part of the framework. Of the same importance is the return of specific knowledge in regards to the local peculiarities which have an effect upon the environmental process. This can concern economic or cultural issues, as well as, climatic or technical ones.

These two aspects have often come together, several authors including Hamdi and Majale (2004), are focusing on this type of partnership as working

instrument for improving livelihood. They remark that although nowadays transformation processes can make important use of modern information technology the best way of knowledge transfer is the face to face communication (Lloyd-Layne, 2003).

A viable way for communication-based knowledge transfer is the workshop-approach developed by the environmental design course of Roma University (Pollak, 2005). The basic idea of workshop is an opportunity for all involved actors to experiment and learn. In former times this happened within the productive process; objects or buildings were made, numerous individuals gave their intellectual and/or physical contribution and humankind gained new experiences to base knowledge upon for dealing with new challenges.

Nowadays we have the possibility of up-scaling what once was a locally circumscribed experience to a global level. It is not impossible to think about a group of architecture students, being assisted by volunteers in an African neighborhood, to create an operational partnership with the local community. Physically doing things they have learned in theory is a very strong challenge for young students and a large number of them are willing to accept it. Their practical training becomes the direct technological contact for the local community.

Good ideas can emerge from the local level as well as from the academic level. In both cases we can be sure that they are incomplete and hardly viable. Communication and integration of aspects on local peculiarities on one hand and technological knowledge on the other can help to pass this obstacle. An example: Using a thin timber shell for a roof construction can have high environmental and economical benefits as compared to conventional frame construction. Once it is verified that this design hypothesis is suitable for the specific skills and resources available on site, how can the geometrical control be managed? Some aspects can be resolved by direct trial and error on site but most likely a model (perhaps a digital one) will be needed to control all of the involved aspects during testing. Resolving together issues of usable space, solar orientation and aerodynamics requires rapid production and evaluation of multiple design solutions before deciding on one of them for the best outcome. In-

volving specific experts for that task in these settings would require financial resources which are not justifiable or simply not available. Architecture students often start dealing with modelling software beginning in their second year which means that their expertise can be used easily. Often just by bringing a laptop to the community meeting. This allows for narrowing the choice of solutions and encouraging the participatory design process by offering a selection of solutions which is sufficiently narrow to be tested directly on site. Previous experiences with this approach demonstrated how a design solution can emerge from the continuous feedback between all involved actors.

CONCLUSION

Adjusting techniques in order to trigger diffuse technological thinking can be achieved by beginning with the design approach and incorporating local skilled participants. Using the building site as a place of live-experimentation makes a predetermined idea of final form as well as the theoretic training of involved persons superfluous. Both of these can be discovered during the building process and will emerge through a continuous transfer of knowledge.

The partnership approach allows us to reduce the building process to an appropriate technological level which is innovative enough to use all available opportunities but still affordable for the specific context. Richard Stallman (2002), the inventor of open-source software, once said that knowledge will develop at its best and realize all its potentialities, if it is considered a common good and everyone can freely make use of it. Why shouldn't this be true for architecture as well?

NOTES

¹ definition of “shanty town” from Wikipedia, the free encyclopedia; http://en.wikipedia.org/wiki/Shanty_town (update Oct. 2005)

² *Millennium Development Goals*, target 11.

REFERENCES

de Foy, G.P. (1984) *Les Pygmees d’Afrique Centrale*; Editions Parenthèses; Marseilles.

Greef A. (2005) *‘It’s rubbish!’ A study of recycled materials to use as interior partitioning in social housing*; XXXIII IAHS World Congress on Housing; Pretoria.

Hamdi N. (1995) *Housing without houses: participation, flexibility, enablement*. Intermediate Technology Development Group: Bourton-on-Dunsmore.

Hamdi N., Majale M. (2004) *Partnerships in Urban Planning: A Guide for Municipalities*;

Intermediate Technology Development Group: Bourton-on-Dunsmore.

Inter-American Development Bank (1998, September) *Programa de Urbanizacao de Assentamentos Populares do Rio de Janeiro*. Inter-American Development Bank: Washington, D.C.

Lloyd-Laney M. (2003) *Making knowledge networks work for the poor – final report*; Intermediate Technology Development Group: Bourton-on-Dunsmore.

Peeters N., Osman A. (2005) *Generating an improved quality of informal housing*; XXXIII IAHS World Congress on Housing; Pretoria.

Perlman J. (2005, October) *The Advent of the Megacities*; interview retrieved online at <http://www.megacitiesproject.org/interview.asap>

Pollak S.; *Poor materials, simple technologies, complex solutions*; XXXIII IAHS World Congress on Housing; Pretoria 2005

Practical Action (2005, September) Frequently Asked Questions. Retrieved online from <http://www.practicalaction.org>

Stallman, Richard M. (2002) *Free Software, Free Society: Selected Essays of Richard M. Stallman*. Free Software Foundation, Cambridge: MA.

United Nations (2003) *UN-Habitat Global Report 2003*. United Nations, Center for Human Settlements, Nairobi.

FITTING THE NEW WITH THE OLD: A PROTOTYPE APPROACH TO CONTEXTUAL FIT

*Abu-Obeid, Natheer (Jordan University of
Science and Technology, Irbid Jordan)*

INTRODUCTION

There has been a growing public dissatisfaction with the visual environment of the past few decades, while historical predecessors are remembered and evoke positive feelings (Sanoff, 1991). Accordingly, many countries began developing and applying new legislation that required solid assessment of environmental aesthetics. It is argued that this dissatisfaction is a result of the lack of empirical studies that validate urban design controls (Stamps, 1995). Developing public policies for aesthetic controls requires community support, involving people in shaping their visual environment (Sanoff, 1991). In this context, Stamps (1995) suggested “conducting scientific experiments on public preferences before the regulations are implemented”. Along this line, Stamps (2000) has conducted a considerable number of empirical studies and experiments in an attempt to apply a logical solid theory of environmental aesthetics, which is also proposed to measure the impact of aesthetics. Contextual fit, urban infill and relating a new building to an old context are design practices that are affected by public opinion. Within this context, the present study investigates another approach to quantitatively evaluate architectural contextual fit from the public’s point of view.

PROTOTYPE THEORY

Categorization and prototypicality studies have provided us with several theories and models, including quantitative ones, to explain our understanding of the environment. Most theories of

categorization are based on the idea that all instances of a category share something in common and that this something, however defined, is necessary for a particular instance to belong to a category (Kumatso, 1992). According to Rosch and Mervis (1975), members of a category regarded as typical shared more features with other members of the category than non-typical members. In other words, examples that are consistent with the knowledge structure are judged as typical of knowledge structure. These typical examples were termed by Rosch and Mervis (1975) and by Purcell (1984, 1986) as good examples.

Prototype theory assumes that people establish a “virtual” member to represent the average member of a certain category. Using random configurations of dots, Posner and Keele (1968) found that the patterns most distant from the prototype were most difficult to recognize. To account for these data, a prototype distance model was proposed by Posner (1969). Using geometric forms, which were systematic analytic transformations of a prototype, Franks and Bransford (1971) demonstrated that participants could construct a prototype to represent the central tendency of patterns. Recognition ratings were found inversely related to an item’s transformational distance from the prototype, with the prototype receiving the highest recognition rating. This study was further developed by Abu-Obeid and Tassinasy (1993, 2000) using schematic architectural patterns; however, the psychological distances among these patterns were empirically determined according to the model of Posner (1969). The findings of Abu-Obeid & Tassinary confirmed the findings of Franks and Bransford, and people’s recognition of novel architectural patterns was found to be an inverse function of the transformational distances from prototypical elevations.

METHOD

Stimulus material: contextual cues & design variables

Visual properties of buildings are to be addressed as the contextual variables in this study. According to Habe (1989), more than 98% of design controls are on visual properties of buildings. In a study by

Groat (1983), she specified space, massing and style as aspects of design strategy, according to which architects may fit the new to the old. In another study, Groat (1988) investigated the design attributes of contextual compatibility. She found that the façade components had the strongest effect compatibility judgment. Bentley, et al., (1985) suggested several contextual cues, such as windows, doors and wall details, as reference variables for contextual fit. Stamps (1995) presented a method to validate contextual urban design principles as a design control. In his study, Stamps identified two reference design variables: scale and character, according to which a new building could be matched with a group of older ones. In another study on preferences for residential facades, Stamps (1999) identified three factors of architectural facades: surface complexity, silhouette complexity, and façade articulation. Generally speaking, most previous studies indicate that judgments of buildings are related primarily to building facades.

The present study builds upon and is an extension to the previously mentioned reference variables. Given the sheer number of possible combinations, it would be complicated to systematically manipulate a large number of design elements in a single study. Consequently, this study used simple artificial architectural elevations that systematically varied by identifying and manipulating three (3) contextual design variables: proportion, the number of masses and the form of windows. The created elevations were the result of applying combined transformational possibilities to the three (3) design elements: 1 – the number of masses (2 possibilities), 2 – the proportion of masses (2 possibilities), and 3 – the form of windows (9 possibilities), which made a total set of 36 alternative elevations (2x2x9). The elevations were drawn with simple rendering.

EXPERIMENT 1: STIMULI SCALING

The main objective of this experiment is to determine the perceptual distances of dissimilarities among all the stimuli, which were to be used in Experiment 2.

Participants

Twelve (12) undergraduate university students (7 males and 5 females) volunteered to participate. The participants were neither architecture nor art majors.

Procedure

Participants, one at a time, were presented with the group of stimuli (total set of 36 patterns in). They were asked to rank the group of patterns in terms of similarity to a reference pattern, which was to be chosen from the total set and rotated for each trial by the experimenter. A total rotation of (36) reference patterns produced a matrix of ranks (36x36) for each participant. To complete this matrix, each individual had to participate in (36) trials.

Analysis and Results

The resulting data of experiment 1, hereafter referred to as proximity data, were in the form of square asymmetric matrices of dissimilarities between patterns within each group. Each matrix represented the responses of one participant. A multi-dimensional scaling analysis was applied to the collected data in the group of patterns to determine the relative perceptual dissimilarity distances among all the patterns in the group. The group was spatially conceptualized as scattered along a visual space, which has a specific number of visual dimensions. Each pattern was represented by a projection on each visual dimension.

The number of dimensions for the group was determined according to the lowest badness-of-fit (or the best model fit) criterion. Scree analyses were performed and showed that a space of four-dimensional solution to best fit for the patterns, which was selected as a reference scale for the main experiment (Experiment 2). Determining the perceptual distances among all patterns would facilitate identifying the prototype of any group of elevations selected from the total set. It would also facilitate determining the closeness of each elevation to the prototype. Calculating all possible distances between all patterns for the total group (36 patterns) was performed using the Euclidean Distance Model. The final product of these calculations was a matrix comprised of all possible Euclidean distances between all patterns, which resulted in (630) possible distances.

EXPERIMENT 2: MAIN EXPERIMENT

The purpose of this experiment is to evaluate the hypothesis that people mentally represent a group of architectural elevations that form a street facade in the form of a prototype, according to which they judge the fit of new patterns with the group.

Research Participants

Fifty six (56) undergraduate university students (30 males and 26 females) participated in this experiment. None of the participants were students of architecture nor of art majors.

Stimulus material

Reference groups (architectural contexts): Three (3) groups (GA, GB & GC) of the previously created architectural elevations were constructed as reference learning stimuli (street façades). Each group was composed of five (5) different elevations to represent a selected portion of an assumed street façade, which in its turn represented an architectural context (Figure 1). The reason for using (3) groups in the experiment instead of using only one group is to study the effect of specific group compositions. A prototype pattern was determined to represent each of the (3) groups. In mathematical terms, the prototype pattern was selected as having the least accumulated perceptual distances from the (5) elevations of its associated group. The perceptual distances were calculated according to the Euclidean distance model. To find this prototype, the total set of 36 patterns was subject to mathematical evaluation, through which the pattern having the least sum of the distances from the group (5) patterns was to be specified as the group prototype. These distances were previously determined in experiment 1. The mathematical calculation of prototypes revealed the existence of multiple prototypes for each of the groups. To make the study less complex, only one of these prototypes was to be selected for each group for further analysis. Participants' rank ordering judgments in this experiment were used as basis for this selection (see: *dependent measures* & Table 2). The prototype that had the highest

frequency of being ranked as best fit was selected from among other multiple prototypes (Figure 2).

Recognition group: A group of fifteen (15) patterns were selected by the experimenter as a recognition group, the patterns of which were to be rank ordered by each participant according to their fit with each one of the reference groups (street facades). The recognition group was selected according to the criteria of diverse elevation compositions and design features and diverse psychological distances from reference groups' prototypes.

Independent variables

Each of the recognition patterns was assigned with a mathematical value in relation to each reference group, which is its calculated perceptual distance from the group prototype (according to Euclidean distance model). This value was considered as the independent variable in the coming analysis. When this value goes higher, this means less similarity between the recognition pattern and the prototype. By considering the three (3) reference groups, three (3) mathematical values were then to be assigned for each recognition pattern (Table 1).

Dependent Measures

The (15) recognition patterns were to be rank ordered in terms of fit with each of the (3) reference groups. The study considered two approaches to treating the rank ordering data as a dependent measure. The first approach is by considering the overall average rank by all participants for each recognition pattern. The second approach is based on the concept the primary target of each participant's ranking is to select the pattern with the best fit (rank-1). Accordingly, percentages of the number of participants assigning a rank-1 for each recognition pattern were treated as dependent measures. This percentage was calculated and treated as a dependent score. The higher the average of ranks is the lower fit with the reference group; while the higher the percentage of rank-1 is the higher fit with the reference group. This would be reflected in the sign of "B" in the regression models. By considering the (3) reference groups, each recognition pattern should have six (6) dependent values (3 best rank percentages and three rank averages) (Table 2).

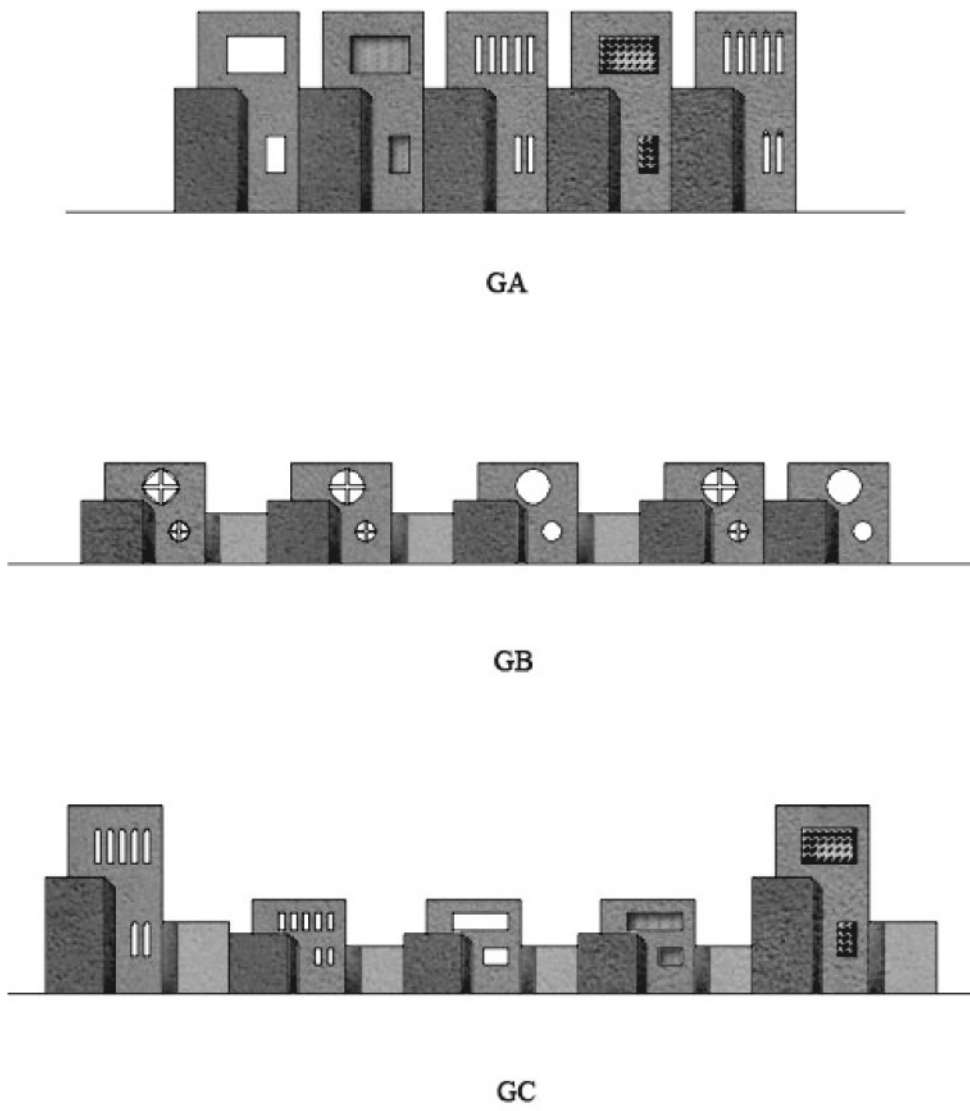


Figure 1. The three reference groups of patterns which represent street facades (architectural contexts).

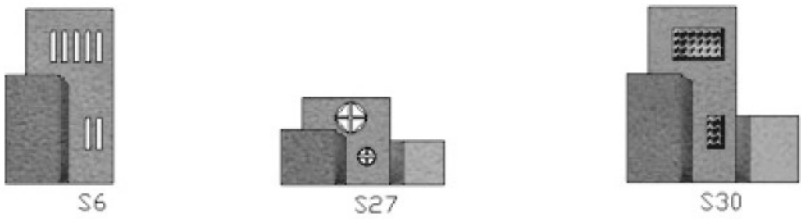


Figure 2. The selected prototypes for the three reference groups (S6 is the prototype for Group A, S27 is the prototype for Group 3, and S30 is the prototype for Group C).

Recognition Stimuli	Pr: Perceptual Distances from Prototype		
	Group A	Group B	Group C
S1	0.14	2.57	0.80
S2	0 .02	2.69	0.92
S4	0.28	2.99	1.22
S6*	0 .00	2.77	0.94
S12	0 .07	2.78	1.01
S19	1.02	1.69	0.08
S21	1.02	1.69	0.08
S22	1.23	1.48	0.29
S25	2.61	0.10	1.67
S27**	2.71	0.00	1.77
S30 ***	0.94	1.77	0.00
S31	1.27	1.44	0.33
S34	2.53	0.18	1.59
S35	2.63	0.08	1.69
S36	2.55	0.16	1.61

Table 1. Values of perceptual distances from prototypes and total frequencies for all recognition stimuli on three reference groups.

* prototype of group A ** prototype of group B
*** prototype of group C

Recognition Stimuli	Percentage of Frequency of Best Rank (1) for Each Recognition Stimulus			Average of Participants' Rank Ordering for Each Recognition Stimulus		
	Group A	Group B	Group C	Group A	Group B	Group C
S1	19.6	1.8	1.8	3.75	9.98	9.68
S2	12.5	1.8	1.8	4.71	12.13	9.80
S4	23.2	1.8	5.4	3.61	12.00	8.79
S6*	30.4	0	3.6	3.52	11.93	9.27
S12	3.6	7.1	1.8	9.13	7.84	9.20
S19	1.8	0	12.5	10.09	6.95	5.25
S21	0	0	5.4	10.07	7.91	5.50
S22	0	0	10.7	9.43	7.88	4.45
S25	1.8	33.9	0	12.23	2.57	9.30
S27**	1.8	44.6	1.8	12.64	2.59	9.54
S30***	3.6	0	33.9	6.88	11.45	4.20
S31	1.8	0	21.4	6.41	10.71	4.54
S34	0	0	0	8.46	5.98	9.98
S35	0	5.4	0	9.66	4.96	9.80
S36	0	5.4	0	9.50	5.21	10.66

Table 2. Frequencies & percentages of frequencies for rank one (best contextual fit) rates for each recognition stimuli.

Procedure

The experiment was conducted in the same setting of experiment 1. Participants, one at a time, were presented with only one reference group of stimuli (5 patterns), which were assumed to represent a portion of a street façade and were to be used as a reference group in a recognition task. With each of the (3) reference groups, the participant was simultaneously presented with a series of (15) recognition patterns that were to be rank ordered in terms of best fit with the presented reference group. The subject was asked to assume that the presented groups of patterns were going to be rank ordered in terms of its contextual fit with the presented street facade, where rank (1) in the evaluation scale represented the best contextual fit in the reference group, and rank (15) represented the lowest contextual fit in the reference group. The rank ordering task was performed by each participant for each of the (3) reference groups. This means a forty five (15x3) ranking judgments by each participant. The order of presenting the (15) recognition patterns with each reference group was randomized among the participants. The order of presenting the reference groups to the participants was rotated among the participants.

ANALYSIS AND RESULTS

Simple linear regression analyses were applied to both the ranks averages and the percentages of frequency of best rank (rank-1) as related to perceptual

distances from prototypes on each of the (3) reference groups (GA, GB & GC). Results are listed in (Table 3).

- * significant (p<0.05)
- ** Note the change of B sign between the two models:
 - o Model-1: Average of Participants’ Rank Ordering for Each Recognition Stimulus
 - o Model-2: Percentage of Frequency of Best Rank (1) for Each Recognition Stimulus

The results demonstrated the following:

1. In the case of reference group A (GA): Regression model-1 turned to be highly significant (p=0.001) & R² = 0.559. Regression model-2 turned to be highly significant (p=0.006) & R² = 0.454.
 2. In the case of reference group B (GB): Regression model-1 turned to be very highly significant (p=0.0001) & R² = 0.732. Regression model-2 turned to be significant (p=0.044) & R² = 0.276.
 3. In the case of reference group C (GC): Regression model-1 turned to be very highly significant (p=0.0001) & R² = 0.769. Regression model-2 turned to be highly significant (p=0.002) & R² = 0.531.
- The analysis addressed two alternative dependent measures: the percentages of first rank for recognition patterns and the average ranks of these patterns. The results indicate that in the alternative of percentages of first rank and in the cases of the three reference groups, the less is the distance between the recogni-

tion pattern and the prototype, the higher is the percentage of first rank (R² ranging from 0.276 to 0.531 & P ranging from 0.044 to 0.002). While in the alternative of ranks average, the less is the distance between the recognition pattern and the prototype, the lower is the percentage of first rank (R² ranging from 0.559 to 0.769 & P ranging from 0.001 to 0.0001). The results demonstrate that in either approaches of looking at the participants’ scores, distance from prototype is a clear index of judgment of contextual fit. In both models and for the three reference groups, all regressions considerable and were statistically significant. In other words, regardless of the alternative composition of the architectural context, participants’ judgments were a function of distance from prototype.

DISCUSSION

The results demonstrate that distance from prototype accounted for a significant portion of participants’ judgments of best contextual fit for the recognition patterns. Regression analysis demonstrated that the more recognition patterns were distant from the prototype, the less participants judged them to belong to the reference groups. This finding is in support of previous studies on prototype approach (Posner, 1969; Franks & Bransford, 1971; Abu-Obeid & Tassinary, 1993, 2000). The results indicate that people do actually abstract their experiences of architectural contexts in terms of prototypes. This prototype represents the average member of the experienced context, which has the greatest similarity to all other members. This tells us that what the participants had learned about architectural contexts was not limited to the specific instances of the reference group. It seems that participants acquired general information about the whole group during scrutinizing.

The study findings have implications for both research and practice. The findings reveal the prototype approach as an alternative means of measuring contextual in fill and measuring fit between new buildings and old & historic contexts. This alternative has the attributes of being scientific, quantitative, and being based on public perceptions. This approach can also be used to define prototypes quantitatively

and based on specific design features in the studies of environmental preferences. For example, this can be included in Purcell’s studies on associated schema discrepancy (1984, 1986) and its associated affect.

This study has a number of limitations that should be addressed before ending the discussion, and these limitations are the following:

1. The study stimuli were not realistic. They were two-dimensional, too simply rendered and included a limited number of design variables.
2. The participants had a relatively short time to learn architectural street facades as architectural contexts (learning groups: A, B, & C). In real life, people spend much longer and with repeated experiences to establish stable (constant) images of architectural contexts in their real environments.

Accordingly, future research is recommended to address the above limitations. Other more realistic stimuli with larger number of variables (including textures, light qualities, colors and architectural details) are recommended for future studies. It is also recommended to investigate such stimuli as being learned frequently by study participants, to make sure they establish stable images as architectural context.

REFERENCES

Abu-Obeid, N. and Tassinary L. G. (1993). Memorableness of architectural elevations is a function of distance from prototype. In S. Valenti and J. Pittenger (Eds.), *ICEPA VII: Proceedings of the Seventh International Conference on Event Perception and Action*. Vancouver, BC: University of British Columbia.

Abu-Obeid, N. and Tassinary L. G. (2000). Abstraction and Categorization of Architectural Forms: A Cognitive – Psychophysical Approach. *EDRA–31st Conference*. San Francisco, California.

Bentley, I., Alock, A., Murrain, P., McGlynn, S., & Smith, G. (1985). *Responsive Environments*. London: The Architectural Press.

Franks, J. J., & Bransford, J. D. (1971). Abstraction of visual patterns. *Journal of Experimental Psychology*, 90, 65–74.

Table 3. Regression analysis on averages of ranks and percentages of frequency best rank (rank-1) for the three reference groups.

Groat, L. (1983). Measuring the fit of new to old. *Architecture*, November, 58–61.

Groat, L. (1988). Contextual compatibility in architecture: An issue of personal tastes? In J. Nasar (Ed.), *Environmental Aesthetics: Theory, Research and Application*. New York: Cambridge University Press.

Habe, R. (1989). Public design control in American Communities. *Town Planning Review*, 60 (2), 195–215.

Komatsu, L. K. (1992). Recent views of conceptual structure. *Psychological Bulletin*, 112 (3), 500–526.

Posner, M. I. (1969). Abstraction and the process of recognition. In G. Bower, and J. Spence, (Eds.), *The psychology of learning and motivation* (Vol. 3) New York: Academic press.

Posner, M. I., and Keele, S. W. (1968). On the genesis of abstract ideas. *Journal of Experimental Psychology*, 77, 353–363.

Purcell, A. T. (1984). Multivariate models and the attributes of the experience of the built environment. *Environment and Planning B*, 11, 173–192.

Purcell, A. T. (1986). Environmental perception and affect: A schema discrepancy model. *Environment and Behavior*, 18, 3–30.

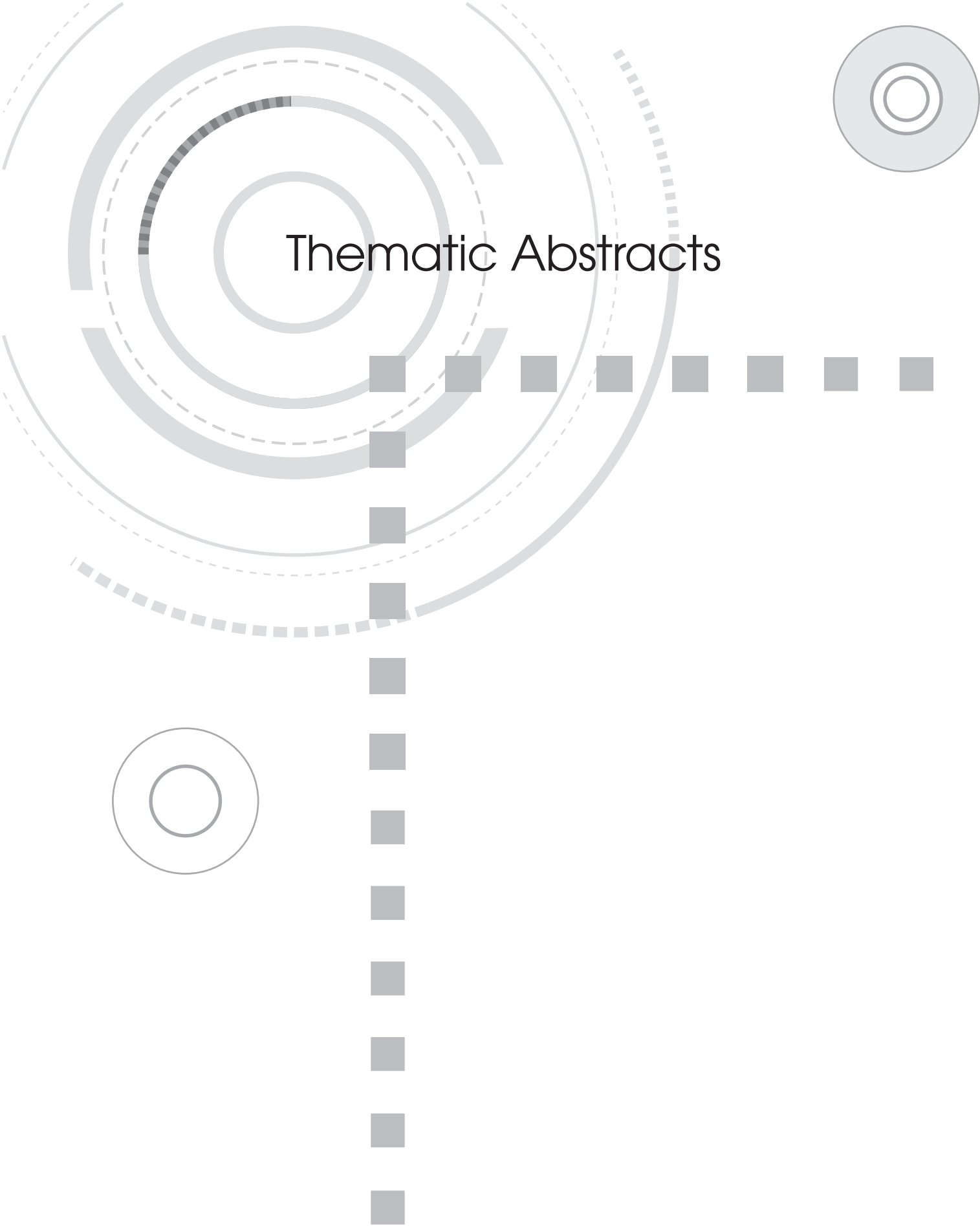
Rosch, E. and Mervis, C. (1975). Family resemblance: Studies in the internal structure of categories. *Cognitive Psychology*, 7, 573–605.

Sanoff, H. (1991). *Visual Research Methods in Design*. New York: Van Nostrand Reinhold

Stamps, A. E. (1995). Dolan, Daubert & contextual urban design principles. In J. Nasar, P. Grannis & K. Hanyu (Eds.), *EDRA 26: Proceedings of the Twenty-Sixth Annual Conference of Environmental Design Research Association*. Boston.

Stamps, A. E. (1999). Physical determinants of preferences for residential facades. *Environment and Behavior*, 31 (6), 723–751.

Stamps, A. E. (2000). *Psychology and the Aesthetics of the Built Environment*. Norwell, MA: Kluwer Academic.



ACTIVE LIVING

ENVIRONMENTS THAT ENABLE AND ENCOURAGE PHYSICAL ACTIVITY: U.S. WALKING AND EUROPEAN BICYCLING DESIGNS

THEMATIC
ABSTRACTS

Active Living

Organizer: Lusk, Anne (Harvard School of Public Health, MA) [Symposium]

Though a growing body of research shows a link between the built environment and physical activity (Transportation Research Board, 2005), measures to characterize the built environment have been mostly gross qualities such as neighborhood density, sidewalks, and parks for walking or roads and leisure-based recreation paths for bicycling. The aesthetic, subtle, and small-scale qualities of the pathways on the propensity to walk have not been identified or measured. Also not identified or measured are bicycle facilities for the young or less skilled bicyclists that lead to destinations, as commonly found in Europe. These bicycle facilities are not in the design guidelines or the built environment in the United States (Pucher and Dijkstra, 2003, Staats – Voohrees Transportation Center, 2002).

This session will reveal current findings from research conducted by four individuals/teams. Reid Ewing (National Center for Smart Growth, University of Maryland, MD) and his team have developed operational definitions (imageability, visual enclosure, human scale, transparency, and complexity) and measurement protocols for subtler urban design qualities believed to be related to walkability. Methods included: 1) recruiting an expert panel; 2) shooting video clips of streetscapes; 3) rating urban design qualities of streetscapes by the expert panel; 4) measuring physical features of streetscapes from the video clips; 5) testing inter-rater reliability of physical measurements and urban design quality ratings; 6) statistically analyzing relationships between physical features and urban design quality ratings, 8)

selection of qualities for operationalization, and 9) development of operational definitions and measurement protocols for urban design qualities based on statistical relationships. Lawrence Frank (University of British Columbia, BC) and Robin Moore (North Carolina State University, NC) posited the research question: What is the impact of aesthetics qualities of pathways on the propensity to walk/bike; what are these qualities and how can they be measured? Disparities between perception of urban form versus objective measures may explain how walk distance and time vary based on the level of interest or detail along the pathway length. They address how these variables can be isolated, controlled, and operationalized to begin to understand the impact of pathway aesthetics on pathway use. Petra Staats (Rochester, NY) suggests that wide-spread implementation of bicycle facilities in the U.S. continues to be difficult partially due to the increasingly complex design issues of roadways, and lack of consideration of different target groups. In Europe, bicycle safety concerns and problems seem more systematically approached and solutions are identified based upon places and target groups. A significant difference to current practice in the U.S. is that in Europe children are often the primary target group of bicycle planning efforts. Anne Lusk (Harvard School of Public Health, MA) suggests that the bicycle facilities in the U.S. are for the road-bicyclists with some provisions for leisure-based recreation path users, negating the needs of the less skilled, individuals without leisure time, and the young. To begin identifying acceptance of additional designs, twenty slides of bicycle environments in Europe, Canada, and China were shown to purposively sampled populations.

Keywords: Aesthetics, health, pathways, urban design, active living

MEASURING ENVIRONMENTAL PERCEPTIONS FOR ACTIVE LIVING RESEARCH

Organizer: Day, Kristen (University of California Irvine)
Presenters: Nasar, Jack (Ohio State University); Day, Kristen (University of California Irvine) [Symposium]

The decision to be physically active may depend on the perceived, as well as the objective qualities of the surrounding physical environment. In 2007, Active Living Research (a national program of the Robert Wood Johnson Foundation) will issue a call for proposals that includes a focus on assessing perceptions of environments that might relate to people’s desire to be active in outdoor environments. This session provides a comprehensive introduction to the measurement of environmental perceptions, focusing on active living research. The session will review “best practices” in measuring environmental perceptions, and will discuss strategies for analysis of perceived and objective environmental features.

Keywords: Active Living, environmental perception

MEASURING URBAN DESIGN QUALITIES RELATED TO WALKABILITY

Ewing, Reid (National Center for Smart Growth, University of Maryland, MD) [Paper]

In active living research, measures used to characterize the built environment have been mostly gross qualities such as neighborhood density and park access. This project has developed operational definitions and measurement protocols for subtler urban design qualities believed to be related to walkability. Methods included: 1) recruiting an expert panel; 2) shooting video clips of streetscapes; 3) rating urban design qualities of streetscapes by the expert panel; 4) measuring physical features of streetscapes from the video clips; 5) testing inter-rater reliability of physical measure-

ments and urban design quality ratings; 6) statistically analyzing relationships between physical features and urban design quality ratings, 8) selection of qualities for operationalization, and 9) development of operational definitions and measurement protocols for urban design qualities based on statistical relationships. Operational definitions and measurement protocols were developed for five of nine urban design qualities: imageability, visual enclosure, human scale, transparency, and complexity. A field survey instrument has been developed, tested in the field, and further refined.

Keywords: active living, walkability, urban design

NEW AUDIT TOOLS FOR MEASURING BUILT ENVIRONMENTS FOR ACTIVE LIVING RESEARCH

Organizers: Day, Kristen (University of California, Irvine)
Presenters: Day, Kristen (University of California, Irvine); Clifton, Kelly J. (University of Maryland); Hoehner, Christy (Saint Louis University, Saint Louis, MO) [Symposium]

Research on active living often employs systematic, field observations of built environment features that may be linked to physical activity. This session will introduce three new audit tools that are designed to measure built environment features for active living research. Presenters will discuss how to use these tools for data collection and analysis, and will discuss the pros and cons of each tool.

Keywords: Active Living, Data Collection Methods

THEMATIC
ABSTRACTS

Active Living

*PATHWAY AESTHETICS: RESPONDING
TO THE EMPIRICAL CHALLENGE FOR
PHYSICAL ACTIVITY RESEARCH*

*Frank, Lawrence (University of British Columbia,
BC) and Moore, Robin (North Carolina State
University, NC) [Paper]*

The research response to the sedentary lifestyle crisis has been rapid and voluminous. The majority of the literature has been generated by studies within the research traditions of public health and exercise science with little attention to attributes of the small-scale settings of physical activity – particularly walking/ bicycling pathways. As a result, some studies seem to prove the obvious, i.e., if sidewalks are provided, more people will walk. A more challenging and relevant research question posited here is: What is the impact of aesthetics qualities of pathways on the propensity to walk/bike; what are these qualities and how can they be measured? Inductively, we may understand that a tree lined, curving street with flower bedecked front yards spilling on to the sidewalk will attract more activity than a straight, tree-less street bordered by faceless commercial buildings. Disparities between perception of urban form versus objective measures may explain how walk distance and time vary based on the level of interest or detail along the pathway length. How can these variables be isolated, controlled, and operationalized to begin to understand the impact of pathway aesthetics on pathway use? Only then can arguments be made for aesthetic dimensions to be included in urban design policy and regulations aimed at improving users’ walking/biking experiences. This contribution will briefly review the early conceptual thinking of urban design researchers such as Kevin Lynch and Phillip Thiel, present day literature, and results of current research by presenters. The bulk of the sessions will be devoted to an open, facilitated discussion of how empirical research can proceed.

Keywords: active living, pathway, aesthetics, users

*PICTURE PREFERENCE SURVEY:
RESPONSES TO EUROPEAN CYCLE
TRACKS*

*Lusk, Anne (Harvard School of Public Health, MA)
[Paper]*

Four factors have limited the provision of environments that enable and encourage physical activity in the United States. First, with some exceptions, much of the current research analyzes environments in the United States, a nation in which obesity rates are high and which has limited walking or bicycling designs (Pucher and Dijkstra, 2003, Staats – Voohrees Transportation Center, 2002). Second, while research has been conducted on walking, bicycling-in-the-road, or leisure-path environments, little research has been conducted on environments that might serve newer users such as in-line skaters and users of a Segway (one less car). Third, the national design guidelines used to build facilities are often written by individuals who favor specific environments. Fourth, members in organizations have lobbied effectively for walking, bicycling-in-the-road, or leisure-path environments with few champions for alternative environments.

To begin identifying acceptance of additional designs, twenty slides of bicycle environments in Europe, Canada, and China were shown to a purposively sampled population of the Association of Pedestrian and Bicycle Professionals (APBP) members and 5 children and 6 seniors (African American, Hispanic, and white, primarily non-road bicyclists, and mixed gender and income). The results will show the designs that were preferred. The discussion following this symposium will center on how to introduce consideration of these and other designs.

Keywords: Active Living, Bicycle paths, leisure-path environments, design preference

*STANDARDS FOR ACCOMMODATING
BICYCLES: A EUROPEAN PERSPECTIVE*

Staats, Petra (Rochester, NY) [Paper]

Given the opportunity, children will ride their bicycles, or otherwise get around in ways that are adventurous, invigorating, and fun. However, trends in travel to school mirror overall reductions in children’s activity. Whereas only one generation ago, 48 percent of students walked or biked to school (Federal Highway Administration, Transportation Characteristics of School Children, Report No.4 Nationwide Personal Transportation Study, Washington, D.C. July 1972.), today, less than 15 percent walk to or from school, and less than 1 percent bike (Bureau of Transportation Statistics, National Household Travel Survey, NHTS, January 2003). At the same time, childhood obesity and physical inactivity have reached epidemic levels. Although bicycle planning is receiving growing attention throughout North America, wide-spread implementation continues to be difficult partially due to the increasingly complex design issues of our roadways, and lack of consideration of different target groups.

This contribution will provide a brief comparison of European and Northern American bicycle planning and design applications. What we find in Europe are a much wider spectrum of measures and facilities as well as more definitive guidance. Bicycle safety concerns and problems seem more systematically approached and solutions are identified based upon places and target groups, to ensure greatest impact of implementations. A significant difference to current practice in the U.S. is in fact, that children are often the primary target group of bicycle planning efforts in European practice.

Keywords: active living, urban design, bicycle paths

CHILDREN & YOUTH ENVIRONMENTS

ADOLESCENTS’ CONSCIOUSNESS OF ENVIRONMENTS FOR COMPUTER USE

Pak, Hee Jin (University of Ulsan, Korea), and
Yang, Sehwa (University of Ulsan, Korea) [Poster]

In Korea, computer supply and internet users are growing faster than any other country. According to Korean National Statistics Office (KNSO), more than 90% of Korean adolescents aged from 15 to 24 use computer and almost half of them spend more than three hours a day on the internet during vacation. The place where they use computer most is their own room, followed by a commercial place for using the computer. Research has also found that for the adolescent the house is not simply a physical environment, but rather the center of their personal lives where their personal and social developments were made. Therefore the environment for computer use among adolescents is very important (Hong, 2001). However, most researches related to computer use focused on the perspectives of internet habits and marketing (Woo, 2000; Kim & Hong, 2000). Few research studies have been conducted empirically about the environment for computer use. Rapid changes in Information Technology (IT) should have a strong influence on the housing environment, but the environment has not adapted to these changes and is even behind. Poorly designed interior environment for computer use may decrease the user’s learning ability and deform physical posture.

The purpose of this study was to reveal the current environmental characteristics of the adolescents’ private room related to computer use and their consciousness of the environment. The basis of this study was a questionnaire containing 40 questions. The questionnaires were provided to a stratified random sampling of 230 college students in Ulsan. Among 219 respondents, 50.7% were female and 49.3% were male. In terms of the housing, more than half of the students were living in apartment and the size of their

houses were between 82.5m² and 115.5m². Seventy-eight percent of respondents had their own room, compared to thirty-nine percent who shared their room with another sibling. More than 90% of respondents installed high speed internet facilities in their housing. They used internet between one and one and a half hour per day (36.1%) and less than one hour (25.1%). The characteristics of furniture for using computer were as follows; (1) computers located on the desk specially designed for computer use (67.4%), the desks were mostly made of wood without drawer. (2) Chairs when using computer were height adjustable (68.2%) and had armrests (65.7%). (3) Keyboards were located lower than the monitor and printers were usually set next to the monitor on the same desk. The monitors were located at a right angle to the window. (4) Only 19.3% had table stands when using computer.

In terms of consciousness of computer use and environment, participants reported they seldom relocated the furniture, their computer, or peripherals for convenience. Respondents were satisfied with their desks’ height and leg room, and level of light. The overall satisfaction of their room (tested by using 5-point Likert scale) was found to be below average. The results of this study offers fundamental information about how to design a computer users’ private room as well as suggesting further studies focused upon the environmental needs of computer-users.

Keywords: adolescent, computer use, environmental condition and consciousness

ADVANCES IN METHODS FOR RESEARCHING CHILDREN’S ENVIRONMENTS

Organizers: Moore, Robin and Sudeshna,
Chatterjee (North Carolina State University,
Raleigh, NC) [Pre-Conference Intensive]

- *Place phenomenology: Using multiple mixed methods to understand environmental child friendliness.* Chatterjee, Sudeshna (North Carolina State University, Raleigh, NC)
 - *Using GIS-coded behavior mapping to investigate outdoor family spaces.* Moore, Robin and Demir, Evrim
 - *Using the Observer to analyze individual behavior.* Cosco, Nilda (North Carolina State University, Raleigh, NC)
 - *Using grounded theory and the qualitative analysis software AtlasTI to look at images created by young people in participatory design/planning projects.* Dennis, Sam (University of Wisconsin – Madison)
 - *Using video to transcend social barriers.* Pevec, Illène and Margolin, Myra (University of Colorado, Boulder, CO)
 - *Research techniques related to questionnaires and map tasks.* Thompson, Catharine Ward (Edinburgh College of Art, Edinburgh, Scotland)
 - *Using GIS/GPS technology and other tools such as pedometers to understand children’s health geographies.* Wridt, Pamela (University of Colorado, Boulder, CO)
- A forum for those conducting research in environments for children, youth, and families to share and discuss research methods – especially applications of new research technologies.
- Keywords:** Children, environment, quantitative research, qualitative research

THE CONFLICTING ROLE OF ‘PLACE’ IN PLACE-BASED YOUTH PROGRAMS

Dennis, Jr., Samuel F. (University of Wisconsin – Madison, WI) [Paper]

Place-based learning is receiving increasing attention beyond the core disciplines concerned with childhood education, youth development, and environmental design. Journalists such as Richard Louv are bringing the work of Robin Moore, Louise Chawla and Roger Hart to a broader audience, emphasizing the need to protect young people from what he has termed “nature-deficit disorder.” While many place-based youth programs seek a more meaningful connection between young people and the natural environment, in practice this goal is elusive, in part, because of difficulties conceptualizing the relationship, but also due to the challenges of measuring progress towards this goal. This paper reports results from the first phase of a qualitative study on the meaning of youth participation in place-based programs. In this phase we collected data from adult coordinators of youth programs, asking a variety of questions focused on the role of place. Using a grounded theory approach, we explored the extent to which these programs linked youth outcomes to place-based program elements through an explicit or implicit theory of change. Some of the results reinforce the work on youth participation first reported by Hart, and more recently by Darcy Varney. Other results, however, point out conflicts between ‘place’ conceptualized as a context for living/learning and ‘place’ as object to be shaped by young people as active agents of change. In many ways, this tension mirrors the debate in sociology and geography about the role of structure and agency. For environmental designers concerned with meaningful youth participation, this conflict challenges us to think of place as never stable and placemaking as never ending.

Keywords: children/youth, place attachment/place meaning, outdoor environments, participation

CULTURAL INFLUENCES ON YOUNG
CHILDREN’S SOCIAL AND SPATIAL
NEGOTIATION STRATEGIES

Majumdar Narayan, Debarati and Patet, Pradnya
(Arizona State University, Tempe, AZ) [Poster]

Environment-behavior research suggests that the relationship between experiences and the setting in which they occur is a transactional one (Altman and Rogoff, 1987). Child development research echoes this view and advocates that the reciprocal relationship between the individual and the environment be considered in defining the process of development (Bronfenbrenner, 1979; Vygotsky, 1976). Physical environments for young children, in particular, have been investigated both in children’s environment research and early childhood education with different emphases. However, both disciplines recognize that physical environments play a crucial role in providing opportunities for healthy development. One developmental domain that has been systematically neglected in the study of physical environments is social development, more specifically, negotiation skills in young children. Many environment-behavior scientists have focused on cognitive and behavioral outcomes of space organization (Zimring & Barnes, 1987; Herrington & Studtmann, 1998). While early childhood educators have weaved social development extensively into their research agenda (Corsaro, 2003; Kemple, 2004), there are few studies that highlight the specific relationship between the physical environment and young children’s negotiation skills.

Our research investigates this relationship with an additional spotlight on cultural factors that children bring to the spaces in which they interact. A previous study exploring opportunities provided by the physical environment of a classroom for preschool children’s negotiation with their peers, suggested that conflict and negotiation increased in small spaces (Majumdar-Narayan, 2004 unpublished). Incidental findings from this study and qualitative analyses of individual children indicated a need to investigate ‘culture’ as a contributing factor to children’s social and spatial ne-

gotiation strategies in small spaces. For instance, in a territorial dispute, Asian children retreated physically allowing the other child to occupy the entire territory and re-entered with caution, while Caucasian children forcefully entered the dispute territory to re-negotiate the boundaries. Instances such as these evoked preliminary reflections about possible differences in learned negotiation skills displayed by children with diverse cultural backgrounds. Cross-cultural research supports this notion that differing cultural paradigms define and understand negotiation differently. This research delves deeper into how culture influences peer negotiation in small enclosed spaces. Naturalistic, non-participant observations will be conducted in a preschool setting that caters to children ages 3–5 with diverse cultural backgrounds. Emergent qualitative themes about children’s social and spatial negotiation strategies will be presented to the children’s classroom teachers during an interview. Hypothesis about the relationship between culture, physical spaces and peer negotiation strategies will be developed based on this conversation and tested through contrived spatial and social situations in the classroom. The study will be presented in an interactive workshop format. Workshop participants will have the opportunity to discuss and reflect on the cultural implications for young children’s social and spatial negotiation strategies.

Keywords: interdisciplinary, qualitative research, childcare centers, culture

DON’T JUST LISTEN: DO SOMETHING!
REFLECTIONS ABOUT MOVING FROM
RESEARCH TO ACTION IN
ACTION-RESEARCH

Chawla, Louise (Kentucky State University,
Frankfort, KY) [Paper]

Ten years after reviving the Growing Up in Cities project of UNESCO and after its adoption in more than 50 locations around the world, eight experienced project leaders shared their reflections about key ingredients of successful action-research to improve

urban environments and municipal policies that affect children and youth. Together, they draw upon experience with a variety of initiatives in Argentina, Australia, Canada, England, India, South Africa, and the United States. This presentation summarizes their conclusions regarding the most effective strategies for moving from research to action. Their recommendations focus on five aspects of planning for action: building broad-based alliances of individuals and organizations committed to improving urban conditions for children; integrating plans into a city administration’s political priorities; budgeting for outcomes; using the right tools to engage young people; and communicating a project’s activities and outcomes through a variety of media. The presentation outlines specific recommendations under each of these themes, with illustrations of how some recommendations can be implemented.

Keywords: children/youth; childcare centers/playgrounds; urban neighborhood/community planning; outdoor environments, advocacy

ENVIRONMENTAL BEHAVIOR STUDY
ABOUT ‘PLACES’ CONSTRUCTED BY
SCHOOL CHILDREN NEARBY THEIR
ROUTES TO/FROM SCHOOL: A CASE
STUDY IN SMALL AND DEPOPULATED
LOCAL TOWN

Hayashida, Daisaku (Wakayama University,
Japan), and Adachi, Kei (Wakayama University,
Japan) [Poster]

The routes to/from one’s schools are one of the most familiar outside environments for school children. In order to keep children’s growth, safety, and well-being, quality of these environments, especially daily routes should be improved. But, recently in Japan, pathetic incidents, such as traffic accidents and crimes, which involve children, are increasing. Now, it is urgent business to improve the regional environment, and it is especially significant to investigate the children’s behavior – their daily environmental relationship

with the environment, and how places for children should be. Clare Cooper Marcus and Carolyn Francis (1993) indicated seven design guidelines for urban open spaces. Yun Jundo and Min Byungho (2004) explored children’s playgrounds, from the viewpoint of children’s behavior – as environmental resources. But, children’s environmental behavior, especially their place–constructing nearby their routes to/from school remains far from clear.

In this study, two elementary schools in Minabe, a small town located Wakayama prefecture, were selected, and daily routes and places constructed by school children were collected, and analyzed from the view point of environment-behavior studies. School ‘M’ is located in central area, but another school ‘I’ is located in farming and mountain area. Around school ‘M’, old main road passes, there are various shops, community facilities, and higher grade schools. But, the area of school ‘I’ is divided into farming and mountain area by a national, heavy traffic road. We conducted the questionnaire of seventy children’s environmental behavior in both schools. The contents of questionnaire were followings. A) location of children’s house, B) route to/from the school, C) reason of selecting the route, and D) favorite places nearby the route. Furthermore, we gathered photographs of favorite places taken by the children, using disposable cameras. Through these investigations, the differences of children’s daily routes between both schools were clarified. There are many roads kept in good conditions around school ‘M’, so children could select one’s route freely, and the general route map is complicated. But, around school ‘I’, there are few roads, which generated naturally, so the general route map is quite simple and has much relation with geographical features. And the reasons of selecting the route are also different. There are many places for communications with friends and residents from school ‘M’. From school ‘I’, there are many places for contact with animals, insects, and nature. And from both schools, especially from the higher glade, we could gather social-minded photographs. From the mentioned above, we concluded as followings. A) Nevertheless it had been seemed that small and depopulated local town has the disadvantage, place-constructing was various

and active, especially places for contact with nature should be dealt as a merit of local town. B) It is significant that there are higher grade school students and adults around children’s daily routes, and this could be contribution to school children’s social growth.

Keywords: schools, children/youth environment, school routes, place-construction, Japan

GETTING TO EFFECTIVE ACTION AND
ADVOCACY FOR ENVIRONMENTS
FOR CHILDREN

Organizer: Chawla, Louise (Kentucky State University, Frankfort, KY)
Additional Presenters: Cosco, Nilda (North Carolina State University, Raleigh, NC); Maxwell, Lorraine (Cornell University, Ithaca, NY); and Moore, Robin (North Carolina State University, Raleigh, NC) [Symposia]

The environmental needs of children and youth are typically presented to design and planning practitioners through two means: advocacy on young people’s behalf by design researchers, or action-research that engages young people themselves in evaluating the conditions of their lives and presenting results. In either case, the process often breaks down in a gap between presenting research about young people’s environmental needs and getting action in response. In this symposium, four speakers suggest ways to bridge the gap between research and action in order to improve environments for young children, school-age children, and young adolescents.

Robin Moore documents rising rates of childhood obesity at the same time as children’s free range of movement in their neighborhoods has narrowed and their time outdoors has declined. He notes that, parallel with these changes, researchers have identified the types of community environments and play settings that attract children to outdoor play and exploration. He discusses how this research base can be better translated and framed to help designers, planners, child advocates, and policy-makers intervene to reverse these trends toward children’s declining

free use of the outdoors and declining health. Also on the scale of communities and metropolitan regions, Louise Chawla presents the reflections of eight experienced facilitators of the Growing Up in Cities project of UNESCO, in which they identify strategic ways to move from research to action in action-research with young adolescents. In cities around the world, young people express a desire to be able to move freely and safely around their communities, to find places to meet friends, interesting activities, and inviting green spaces. The accessible communities which they seek would promote physical activity, health, and social networks, and therefore efforts to ensure that community leaders, municipal officials and other decision-makers respond to young people’s concerns and suggestions is one component of efforts to improve young people’s social and physical health.

Two presentations focus on the quality of early childhood environments. Lorraine Maxwell describes how university-based cooperative extension programs can work with local and county governments to improve early childhood settings in the home and other locations by providing materials for parent education and early childhood caregivers’ training programs. Nilda Cosco introduces POEMS, a newly developed Preschool Outdoor Environment Scale. Because POEMS was created to reliably assess the quality of preschool play areas, it can be used to establish associations between the quality of outdoor environments and young children’s physical activity. Therefore it can be a tool to support evidence-based advocacy on young children’s behalf.

Keywords: children/youth; health; childcare centers/playgrounds; neighborhood/community planning; outdoor environments

DAY CARE/PRESCHOOLS

CONFLICT IN CONTEXT: EPISODES
IN INDOOR AND OUTDOOR
ENVIRONMENTS OF PRESCHOOLS

Debarati Majumdar Narayan (Arizona State University, Arizona) [Poster]

In the course of every human being’s life, social interactions sometimes give rise to situations of opposition or disagreement with others. Such situations of conflict occur as much in the everyday lives of adults, as they do in the lives of young children. In early childhood, as social interactions increase and peer relations are formed, conflicts frequently arise (Corsaro, 2003). Although these disputes are generally accepted as a natural occurrence during the process of friendship building, research suggests that children’s conflicts can have both positive and negative implications for their development (Hartup & Laursen, 1993; Corsaro, 2003). On the one hand, constant disputes and oppositions can hinder children’s ability to form long-lasting friendships; while on the other hand, conflict and conflict resolution can provide opportunities for understanding of social rules, perspective taking and developing a child’s sense of individuality and self-worth.

By its very nature, conflicts are a reflection of the context within which they occur. Preschools and childcare centers provide the context for children’s earliest and most significant social experiences with peers and adults, outside their family environment. In early childhood, play facilitates the greatest opportunity for social interactions and therefore conflict situations (Piaget, 1962; Vygotsky, 1976). These social interactions are shaped by the context of the preschool setting, which includes the physical, social, cultural and political dimensions (Barker and Wright, 1954) of both the indoor and outdoor environments. Although some of the literature emphasizes physical dimensions of the setting to be important determinants of

children’s conflicts, most research has focused on the social structure of the setting as the key determinant for the nature of children’s conflicts. Based on the presumed social structure of a setting, assumptions have then been made about the nature of conflicts that might occur there (Hartup & Laursen, 1993). Specific physical dimensions of the setting have not been explored as determinants for the nature of children’s conflicts. This paper explores the qualitative and quantitative nature of children’s conflicts and its resolution in relation to the physical dimensions of the conflict setting. It is an in-depth investigation of context specific conflict episodes occurring both in indoor and outdoor settings of preschools. Conflict episodes are defined here as time-distributed social occurrences that include issues, instigation tactics, oppositional tactics, resolution strategies and outcomes (Shantz, 1987). Naturalistic observations of preschool children engaged in free-play indoors and outdoors will provide the source of data for this study. Content analysis of conflict episodes and their relation to the socio-physical environment in which they occurred, offers insight into the opportunities the two settings provide for conflict and conflict resolution.

This interactive workshop aims at facilitating a deeper understanding of young children’s conflict episodes and the role of the physical environment in determining the nature of these conflicts. Implications for designing children’s environments that support social development will also be discussed.

Keywords: children, childcare centers, indoor/outdoor, negotiation, case study

*QUALITATIVE IMPROVEMENT OF
THE CHILDCARE ENVIRONMENT
BASED UPON THE CHARACTERISTICS
OF ENVIRONMENTAL SETTINGS AS
SELECTED BY STAFF CAREGIVERS*

Kenji, Otagao (Kogakuin University, Japan),
Tetsuya, Akagi (Kogakuin University, Japan)
[Poster]

THEMATIC ABSTRACTS

Children & Youth
Environments

*Day Care &
Preschools*

Japanese guidelines for childcare in day nursery have changed from staff-oriented childcare to care focused upon the spontaneity of children. Not only past enhancement of physical environment, but also enhancement of human environment, such as humanity and specialized care staff are important themes in improving the childcare environment and in offering spontaneity-based care of children. However, often only the children are the focus of studies, and the human relation between the care staff and the children is rarely examined, especially in relation to the childcare environment. Therefore, it is important to examine how the care staff construct their relations with the children while in the childcare setting, and to clarify transactions between human and physical environment which result in the qualitative improvement of the childcare environment.

The purpose of this study is to improve the childcare environment qualitatively based on the characteristic of environmental settings as identified from behavior analyses of care staffs and children within spontaneity-based care settings for children. Transactions between the care staff, the children and the childcare environment were analyzed by using a behavioral tracking method occurring every five minutes. This analysis was conducted on the care staff and the children in two day nurseries of differing environmental scales.

Results and Conclusions from this investigation included:

1) The importance of matching the environmental settings to the care purpose. In the place of the caring activity, the attention of children might be turned to the environmental elements that become noisy when

the environmental elements are arranged. Therefore, it is important that the care staff set up appropriately the environmental elements which are suitable to their caring purpose.

2) Clear division of the play environment was needed at free-flow play time in the classroom. The children's range of the behaviors often cross each other, and it is not easy for children to concentrate on playing when this occurs. Therefore, the care staff should set up the environment corresponding to the kinds of various play with which the children will be involved, and clearly divide the play environments.

3) Phased shift of the caring activity is important. A child's concentration decreases when the caring activity shifts drastically. Therefore, the care staff should avoid drastic shifts between caring activities, and consider a more phased shift as not to disturb the concentration of children. It is effective to take a familiar activity for the children, such as the roll call or making a line in the middle area such as the corridors or terraces, to shift gradually during the change between one caring activity and another.

Keywords: care staff, children, childcare environment, environmental setting, spatial behavior

*A STUDY ON THE NEEDS OF SPACE
DESIGN IN DAY CARE FOR EARLY
INTERVENTION: THREE CASE STUDIES
OF CHILD DEVELOPMENT CENTERS IN
KAOHSIUNG*

*Tzeng, Szu-Yu (National Yunlin University of
Science & Technology) [Poster]*

In 1993's Children Laws, developmental retardation is divided into five types: recognition, psychology, communication, social emotion and adaptation ability of living. Researchers point out that it's necessary to combine special education and recovery together. But in the majority of Day Care Centers for Early Intervention (mixed with the five types of development retardation) the environmental setting has not been designed to address the needs of developmental re-

tardation. This research aims to analyze the behavior and architectural needs of developmentally delayed children and teachers at three Day Care Centers for Early Intervention.

There are three main purposes in this study: 1) To understand the characteristics of learning behavior and the contents of Early Intervention of development retardation; 2) To investigate the problems of planning situation and using behavior in the Day Care Centers for Early Intervention; and 3) To conclude the orientations and design principles for future designs of Day Care Centers for Early Intervention. Results from these case studies revealed common problems among the three centers: (1) conflict of spaces – the static activities space was mixed with dynamic activities space at nursery room, sensation room and rehabilitation space; (2) the equipment lacked consideration of the ergonomics scale appropriate for children; and (3) shortage of storage space for teaching utensils and equipment.

Keywords: early intervention, day care center, development retardation, children, learning behavior.

*TOOLS FOR RESEARCHING PRESCHOOL
ENVIRONMENTS TO SUPPORT ACTIVE
LIVING POLICIES FOR YOUNG CHILDREN*

*Cosco, Nilda (North Carolina State University,
Raleigh, NC) [Paper]*

Despite assumptions about children's natural drive to stay active, the health of even the youngest children is currently affected by sedentary lifestyles. Recent research with three to five year olds shows that boys may spend up to 76% of their time and girls up to 81% of their time in sedentary behaviors. This lack of physical activity, combined with poor nutrition, is a major reason why 30% of the two to five years olds in the United States are overweight or at risk of being overweight. High quality, diverse outdoor environments support children's active play, but such environments are difficult to specify. The Preschool Outdoor Environment Measurement Scale – POEMS – was

developed to serve as a tool for childcare teachers and administrators striving to create higher quality environments; a reference for landscape architects and designers; a source of guidance for policy initiatives in early childhood development; and a research instrument to study the implications of outdoor environmental quality for children's development and learning. POEMS is an attempt to reliably assess the quality of preschool play areas and support evidence-based advocacy as well as policy and environmental change.

Keywords: children/youth; health; childcare centers/ playgrounds; urban neighborhood/community planning; outdoor environments, advocacy

THEMATIC ABSTRACTS

Children & Youth
Environments

Schools & Classrooms

SCHOOLS & CLASSROOMS

THE L-SHAPED CLASSROOM: A NEW LEARNING ENVIRONMENT

Sanoff, Henry (North Carolina State University)
[Paper]

This paper describes how the design of school environments can be influenced by research. There has been little analysis of how classroom shape might influence learning or how classroom shape may be incorporated into the design of new school facilities. Building on the concepts related to the 'fat L' shaped classroom, this design pattern will be examined as it relates to a transactional worldview in an attempt to describe the patterns, shapes, and flow of people, time, and space, which are not only inseparable, but are mutually defining elements (Altman & Rogoff, 1987). The 'L' shaped classroom may be understood as a behavior setting (Barker, 1968, 1969; Wicker 1979) for, within the context of the school environment, it may be perceived as an entity in and of itself. Unlike traditional square or rectangular shaped classrooms, this configuration has been designed to support multiple activity settings and multiple intelligences (Gardner, 1983).

The L-shape originated from an understanding of the possible transactions that occur from the interactions in the socio-physical environment and the situated nature of learning. Because people learn in diverse ways, the classroom layout environment should be designed to promote the various ways in which people acquire knowledge. As described above, the layout of this classroom affords the opportunity to create settings for individual, one-to-one, small group, and large group activities.

This paper will: (1) examine the L-shaped classroom as a design pattern which supports a range of activity settings; (2) define activity settings; (3) describe the L-shape classroom as supporting flexible, integrated, and variable activity settings; (4) evaluate examples of L-shape Classrooms in the United States and (5) examine how the L-shape might extend learning activities throughout the school setting.

To test the validity of L-shaped classrooms, an analysis was conducted of 150 school floor plans to determine typical categories of classroom design patterns (Sanoff, 2003). From this survey, six classroom types were identified, graphically portrayed, and tested in a variety of field applications that sought teachers' classroom preferences. The implementation of teacher preferences for L-shaped classrooms in the design of several school buildings yielded several interesting findings. Through case examples it will be demonstrated that in L-shape classrooms teachers' behavior will vary from traditional classrooms due to the physical layout, which creates corner zones. These zones or activity settings promote places for project based learning to occur in the classroom so that students with varying educational skills and intelligences may work collaboratively sharing their understandings as they solve problems (Lippman, 1997, Pea, 1993).

Keywords: learning environments, classroom, schools

OPINIONS AND STRATEGIES FOR CHANGE IN BRAZILIAN PUBLIC SCHOOLYARDS

Fedrizzi, Beatriz (Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil), and Flach, Ivelise (Paisagismo & Ambiente S/C Ltda, Porto Alegre, Brazil) [Paper]

Schoolyard design and potential use of schoolyards is particularly important since children spend so much of their time either in the school or in the schoolyard. It is also important to recognize that the schoolyard influences the school community even when the school children are not using it. Views from the classrooms of the schoolyard or the pride of belonging to a school with a very beautiful schoolyard are examples of the continued influence of the schoolyard upon the community.

This study focuses upon the community's reaction towards the schoolyards of Brazilian Public Schools in the city of Porto Alegre. The main goal is to develop procedures which identify key ideas and issues that can be then used to change Brazilian schoolyards so that the schoolyards adequately address the school community's needs and, especially, the children's expectations. It is essential to know if the community is really interested in changing their school grounds and also the best way to do so. If changes are directed by the community and occur with their involvement, the community expresses more interest in the schoolyard and the chances of vandalism are diminished. Ten schoolyards were selected for this research. A case study was conducted at each of the ten Brazilian schoolyards within the city of Porto Alegre. Interviews, in the form of an open-ended questionnaire, were conducted with participants from the school community. Results of these interviews revealed that the school community held many thematic ideas about the schoolyards.

Results indicated that there is a big interest in changing the schoolyards. Future strategies for creating these changes were suggested by members of the school community. Interviews revealed that although the pupils needed to be taken care of, at the same time, they expressed a need to take care of the schoolyard. Principals and teachers reported a need for strategies to

improve the pupils' lives. One suggested way of making life better was vegetation, incorporating a vegetable garden into the schoolyard would reduce nutritional problems, as well as diminish the children's aggression and the arid feeling of the site. Even though nutrition is a very important issue, it is interesting that the school community also mentions other demands in relation to vegetation and the vegetable garden. Differences were found between small and large schoolyards as well. Small schoolyards presented more pessimistic behavior in regards to change and created more stress through running around. In opposition, large schoolyards offered more optimistic behavior concerning changes and found the stress of running to be less disturbing. Overall the school community reported a desire for a higher quality of life, even in their schoolyards. Participants felt that the current state of schoolyards in Porto Alegre reflected the poor conditions, not only of school and community, but of the whole social and educational system in Brazil.

Keywords: children/youth, childcare centers/playgrounds, outdoor environments, landscape architecture, case study

PUBLIC SCHOOL SITING AND DESIGN IMPLICATIONS IN FULTON COUNTY, GEORGIA

Tsepas, Joyce (Georgia Institute of Technology, Atlanta, GA) [Paper]

Although state regulated guidelines in Georgia emphasize the importance of public school siting, case studies of twelve Fulton County High Schools reveal that there is a separation between schools and the communities they serve. "A Guide to School Site Selection" created by the Georgia Department of Education (the primary source that School Boards use when determining the acceptability of future school sites) is an unproductive tool because of its generality and its support of ad hoc school planning. In Fulton County and in the Atlanta region, new schools are commonly built along arterial and collector roads that

are not well connected to residential networks. Facility requirements such as parking and bus circulation take precedence over pedestrian accessibility, and entryways to schools have little or no relationship to the streets and driveways that service them. To exacerbate the dilemma of public school siting in the Atlanta region, sites are selected by school boards based on the cheap cost of land, and independent of local planning objectives. In response to an overall neglect of neighborhood school planning in the United States, organizations such as the American Architectural Foundation and the Congress for the New Urbanism have set forth very specific smart growth principles, relating school siting and design to neighborhood design, health and safety. For instance, principle 16 of the Charter for New Urbanism states, "Concentrations of civic, institutional, and commercial activity should be embedded in neighborhoods and districts, not isolated in remote, single-use complexes. Schools should be sized and located to enable children to walk or bicycle to them." In a diagrammatic analysis of High Schools in Fulton County, the absence of such smart growth principles unveil the need to move school siting policy from what it is today to new directions in Georgia and in the Atlanta region.

Keywords: mobility, neighborhood planning, suburb, urban design, case study

RESEARCH-BASED DESIGN OF FAMILY SCIENCE LEARNING SETTINGS IN MUSEUMS

Moore, Robin; Cosco, Nilda; and Demir, Evrim; (North Carolina State University, Raleigh, NC); Borun, Minda, (Franklin Institute Science Museum, Philadelphia, PA) [Symposium]

The potential of non-formal education settings such as museums as learning settings has long been recognized by the National Science Foundation (NSF). Even so, little research literature exists linking attributes of learning processes with defined physical settings and their features – especially settings serving families with young children. The results of two NSF-funded

research projects will be used as vehicles to discuss evidence-based design pertaining to family science learning settings. The two projects include: The Family Science Learning Research Project conducted in four museums in the Philadelphia area collectively known as the Philadelphia/Camden Informal Science Education Collaborative (PISEC); and My Place by the Bay: Prepared Environments for Early Science Learning, conducted at the Bay Area Discovery Museum (BADM) in Sausalito, California. Unlike in classroom settings where the learner is an individual student, the learner in museum indoor and outdoor settings is generally a small group interacting with three-dimensional artifacts, related graphic/photographic media, and environmental features (including topography and natural elements). The individual’s behavior is shaped by these settings and enhanced by input from other members of the visiting group – most commonly the family. Exhibits, settings, and social interactions together facilitate learning processes to create a culture of shared knowledge, values and experiences. This workshop discusses two significant findings: a) a model for exhibit development based on seven characteristics of family-friendly exhibits, which emerged from the PISEC study aimed at improving exhibits and programs that promote family science learning; and b) the results of the BADM study which employed quantitative behavioral observation methods (behavioral scans, using The Observer® codes and GIS-coded behavior mapping), qualitative methods (setting observations and tracking), and an on-line survey of museum members.

Keywords: children, museum, quantitative research, learning, cognition, exhibit design

SHARED IMAGINATIONS: ARCHITECTURE AND BUILT ENVIRONMENT EDUCATION FOR YOUNG PEOPLE

Organizers: Parnell, Rosie (University of Sheffield, UK) and Sanoff, Henry (North Carolina State University)

Additional Presenters: Rottle, Nancy D. (Department of Landscape Architecture/Department of Architecture, University of Washington), Mitchell, Mari (Department of Art History, Ithaca College, NY) and Striniste, Nancy (Founder of EarlySpace, Arlington, VA) [Symposium]

Despite broad support for the UN convention on the rights of the child globally, few opportunities are given to young people to make their views known about the places in which they work, rest and play. Education can potentially play a vital role in supporting young people in this context, developing relevant skills, knowledge and understanding, as well as confidence and self-esteem. Awareness of the built environment and architectural design is relatively low in many countries, yet this subject area presents an exciting opportunity for creative learning. There is enormous potential to integrate such learning into both formal and informal education. Active, hands-on, project-based approaches have been proven to be highly motivating to participants and can engage different types of learners whose skills are often marginalized by the mainstream curriculum.

The environmental education movement in the United States began over 30 years ago, eventually becoming subsumed in science education. Parallel to this, design education developed and eventually became part of the core curriculum in the United Kingdom. More recently, pockets of activity around the world suggest that a trend supporting architecture and built environment education might be emerging. Countries such as Finland have included architecture (understood in a holistic sense) in their education policy, so that all young people will learn about their built environment. In the United Kingdom, a new charity has been formed for Architecture and Built Environment Education. The United Kingdom’s Schools for The Future Programme has also sparked much debate about the potential to involve young people in the school design process and to use this involvement as a source of learning. The variety of interest and activity that is now apparent was witnessed at a recent international seminar on architecture education for young people (Playce@2005), which saw representation from 14 countries with people keen to share ideas and practice.

This workshop presents an overview of current relevant activity and related policy to enable comparison of approach and attitude in different countries. Participants are also invited to contribute further examples. The historical context of current works will also be explored, through a summary review which maps the development of environmental and design education in the United Kingdom and United States. A discussion and interactive session will follow, inviting participants to reflect on current activity in regards to this historical context.

Specific examples of action research within children and youth environments will also be presented. These include results of a project which developed interactive architecture-focused resources with teachers, teacher training activities, and participatory approaches to school design as a tool for learning. Finally, interactive activities will permit attendees to explore key issues and questions, such as managing expectations, ethics, cross-disciplinary learning vs. subject specific learning, and the meeting of architectural and educational cultures.

Keywords: children and youth environments, design/architecture education, policy, schools

USING ENVIRONMENT-BEHAVIOR RESEARCH TO INFORM PARENT EDUCATION AND EARLY CHILDHOOD CAREGIVERS TRAINING PROGRAMS

*Maxwell, Lorraine E. (Cornell University, Ithaca, NY)
[Paper]*

Improving the lives of young children, infants to school age, often means better educating those who care for them – parents, teachers, and caregivers. Incorporating research into parent education and early childhood caregivers training programs is not new. Research in child development, adult development, and early childhood education forms the basis for these programs. While this research base is important, research related to the role of the physical environment in child development has often been

left out. Cooperative Extension is a federal program whose goal is to develop educational programs for the general population based on research done at the university. These programs are taken directly to people in their own communities. Each state has at least one designated university that is a land-grant institution. The faculty at these universities work with local and county government to deliver research-based educational programs. This presentation describes how environment-behavior research in early childhood settings has been used to develop materials for parent education and early childhood caregivers training programs. One way to advocate for young children is to help their caregivers, both in and out of the home, provide more appropriate environments for their cognitive, physical, and socio-emotional development.

Keywords: children and youth environments, design/architecture education, policy, schools

PUBLIC SPACE/ URBAN SPACE & YOUTH

HOW CAN WE MAKE MID-TOWN URBAN AREAS MORE SUPPORTIVE OF THE NEEDS OF YOUNG CHILDREN AND THEIR CARETAKERS?

*Rivlin, Leanne G.; Hart, Roger; Coons, Alena; Douglas, Jason; Fields, Desiree; Housley, Elizabeth; Izadpariah Jahromi, Aida; Nallari, Anupama; Skorupka, Agnieszka; Sosnowy, Collette (City University of New York Graduate Center)
[Workshop/Working Group]*

This working group addresses ways for improving existing urban parks and public spaces that lack play areas for young children. Urban public spaces are often domains of conflicting public-space interests between different groups of people, which sometimes lead to conflict. As a research team interested in the

ways that midtown urban areas could attract young children and their caretakers, we studied a midtown urban park in a business area of Manhattan; a park that lacks outdoor play facilities for children. We are interested in discovering many ways that the park could attract young users and their caretakers. It can be argued that by adding play elements for children, this park, and others in dense, business locations, would draw a broader range of users, increasing the pleasures and safety of these places. Midtown urban parks with outdoor play facilities would accommo- date tourists with children, children in local child care centers, as well as others who live in the limited nearby housing. This working group begins with a brief description of the study aimed at encouraging those attending to offer suggestions for expanding outdoor play opportunities in dense, urban business areas. Ideas that address the fun, safety and com- fort of children and their caretakers are encouraged. This opportunity for a productive discussion among people concerned with these issues can yield impor- tant directions for future work, including agendas for research and urban public space policies.

Keywords: public safety and welfare, children/youth, design review, childcare centers/playgrounds, outdoor environments

MIDDLE CHILDHOOD OUTDOORS: HOW
CAN EVIDENCE BE USED TO CREATE
EFFECTIVE URBAN DESIGN POLICY?

Moore, Robin (North Carolina State University,
Raleigh, NC) [Paper]

Less than two generations ago, many urban 8 to 12 year olds had free-range territories that extended far from home, but dramatic changes in children’s lifestyles have severely curtailed such free-ranging behavior. T.V., the Internet, parental apprehension, traffic dangers, working mothers, and the commer- cialization of children’s play are key factors associ- ated with children’s decreasing time outdoors. The current obesity crisis provides dramatic evidence of

the negative health consequences of the “un-natural” sedentary lifestyles of contemporary, postindustrial childhood. Beginning in the late 1960s, research on children’s landscape use has gathered empirical evidence to support a conceptual framework of sig- nificant environments, settings, and features to drive policy development. However, to a large extent these findings have not been applied. How can research evidence be translated and framed to help designers, advocates, and policy-makers make forceful interven- tions in the urban landscape to “pull” children back outside and to help reverse the trend towards their worsening physical (and possibly mental) health? This presentation suggests ways to make research more visible and applied.

Keywords: children and youth environments, out- door environments

TEENS AND CONFLICT IN THE
URBAN LANDSCAPE

Owens, Patsy Eubanks (University of California,
Davis), Travlou, Penny (Edinburgh College of
Art, Scotland), Zirnhelt, Amber (University of
Edinburgh, Scotland), Chiu, Chi-Hsin (City
University of New York), Wooley, Helen (University
of Sheffield, England) [Workshop/Working Group]

This Children and Youth Environments Network sponsored working group provides an opportunity for participants to discuss the issue of teen-related con- flicts in urban settings. Several researchers are con- ducting studies with teenagers that have uncovered a reoccurring and underlying theme of conflict. This conflict occurs at many levels including conflict with other users, property owners and managers, police and other teenagers. Previous research has touched on some of the aspects of conflict as it relates to teen use of public areas, but a thorough examination of the breadth of this issue is needed. This working group provides a venue for discussing the current research and identifying future research directions.

Five research projects that highlight some of the conflict issues relating to teens and the urban landscape will be presented during the work group. Included in the discussion will be an examination of teens liked and disliked places in Sacramento, Cali- fornia by Owens, which offers insight into manage- ment and design practices that limit teen use of urban places and the impact of these controls have on the teenager’s sense of community. The second project, by Traylou, examines young skateboarders’ attempt to construct their own spaces within Edinburgh city centre, and the city council’s efforts to convince local residents to accept the construction of a skatepark in the city. Thirdly, Zirnhelt’s research on young people and mountain biking in Edinburgh offers a case- study of Corstorphine Hill. This case study includes release of policy recommendations for Edinburgh as well as screening of a short documentary on moun- tain biking in Edinburgh filmed and produced by local youth riders. Chiu’s presentation focuses on the impact of defensive design and social control on skate- boarders’ activities in New York City. Various limits skateboarders face in public space from a social and a design perspective are featured in this study. Lastly, Wooley discusses recent research of Pakistani teen- agers regarding their use of Sheffield’s public spaces, particularly the teen-perceived barriers to the use of public spaces and mechanisms, including manage- ment practices, for overcoming these barriers.

This workshop provides an opportunity for par- ticipants to discuss the findings of these studies as well as their own research and findings. The focus of the discussion will be on identifying the various points of conflict for youth in these urban environ- ments, the causes for the conflict, and directions for future research aimed towards understanding and alleviating conflict. Topics that may be addressed in this workshop include: conflicts with other users and their differing objectives for the use of a place; perceived misuse of places and intimidation by teens; fear of property destruction by owners, managers and officials; social expectations for teen behavior; and ter- ritorial disputes and friendship difficulties.

Keywords: children/youth, urban setting, urban design, case study

YOUNG PEOPLE’S CONFLICT,
CONTRADICTION AND COMFORT IN
PUBLIC SPACE: AN ACTION RESEARCH
PROJECT IN NEW YORK CITY

Ferguson, Sage (Cornell University, Ithaca, NY)
[Poster]

As community developers, landscape architects or planners, we want to be able to develop a checklist, a list of tools and affordances that we know will work well for a particular group. We know that on the local level designs will take on their own shape in order to best work for a local group, but we want some direc- tion, some way of knowing, that we are providing good environments for the well-being of people. What happens when a favorite place provides qualities that young people see as dangerous, safe, teenager friendly and un-friendly? Growing Up in New York City (GUINYC), an action research project, provides mul- tiple examples of conflict, contradiction and comfort within the same space that young people seem to want to both embrace and change. During the summer 2005, GUINYC engaged young people throughout New York City as partners in urban evaluation and change. Over 120 young people worked with community organiza- tions and Cornell researchers in six New York neigh- borhoods to document and evaluate their area, identify priorities for change, and work to make change happen. The project is part of the global “Growing Up in Cities” initiative of UNESCO. This presentation explores the contradictions through which young people interact with public spaces. As one of the researchers with the young people, I will report on the action research that uncovers the contradictions in the young people’s iden- tification of safe, dangerous, friendly and un-friendly public spaces. Also, this presentation shares the young people’s action plans, which seek to address their own conflicts with their neighborhood environments. Fi- nally, the presentation suggests design implications for creating dynamic public spaces for young people.

Keywords: participation, neighborhood/community planning, children/youth, action research, landscape architecture

CITIES & SMALL TOWNS

CITIES/SUBURBIA/EXURBIA

THE ARCHITECTURE OF THE CITY OF CHALLENGE

THEMATIC
ABSTRACTS

Cities &
Small Towns

Cities/
Suburbia/
Exurbia

Dülgeroglu-Yüksel, Yurdanur (Istanbul Technical University, Turkey) [Poster]

On one side the squatter houses, representing the undesirable, unplanned, chaotic, crowded, dirty aspects of the city and on the other, elite residences, representing the desirable, the liveable, the planned, orderly, nice and serene aspects of the city. One is the ordinary life, the other is a refined, sophisticated life. The good and the bad; the beautiful and the ugly. The elite prestigious building materials used to glam-ourize the beauty parlors, nice restaurants, cafes, vivid shopping centers, playgrounds, car parks and terraces on one side; on the other are the crowded dirty streets, run-down houses inhabited by those who wake up early to start the engine of the city. These neighborhoods are usually separated from each other in the city landscape, but there are some very interesting areas where the two opposites meet each other as in Rumelihisarüstü where University people and old gecekondu dwellers combine; stinye where squatters meet the gated communities; and Ni anta 1 where the high income residents live together with “trash” mahalle “quarter” dwellers.

These cases of togetherness of the opposites have strikingly increased recently and generated a conflicting image of the city. Is the city an integrated mix of the two types of residences? Or is this a trend starting with the late 20th century and expanding to the 21st? Should architects and planners support this trend or reverse it? Or, should sociologists analyze this phenomenon to see if it is an opportunity or a risk for becoming a sustainable city? Definitely, there

is a need for the team effort now more than ever before in the contemporary city. What alternative routes does it offer for the city in the future? What are the roles of the architect, the social scientist and the planner? Who serves as the decision-maker? Who is the client and is there citizen participation? Is such physical development to the detriment of the city? Does it require “de-facto” planning approach? Experiencing the city is quite different now walking thru such integrated edge neighborhoods, talking to people, seeing different housing typologies, both types occupying the same location, seeing thru the beautiful view of the Bosphorus. Such an experience is now the reality not a make-believe one. What is the impact of these sub-cultural meanings in a complex society – how global or local is such an experience? Should the city be re-defined? Is this a pseudo-mix but not a real integration? Just people living side by side but living isolated lives each? Is this a gap? Or is it a step towards a social mix? What do these connections mean in the sense of a dynamic change and sense of acculturation? Which group is affected by the other? Both or none or one? Does sharing a location by different groups lead to a commonly shared cultural setting? New city environments are achieved through the participation of those who live within the urban cultural context. Architectural characteristics of the city influence the continuity of its physical and social form as well as its integrity starting from the past and extending into the future.

Keywords: Cities, Developing Countries, International, Squatter Communities

CONFLICT BETWEEN GROWTH & QUALITY OF URBAN LIFE: INITIAL FINDINGS FROM AN ONGOING STUDY IN METROPOLITAN ISTANBUL

Baran, Perver (North Carolina State University), Turkoglu, Handan D.; Bolen, Fulin; Gulersoy, Nuran Z. (Istanbul Technical University, Turkey) and Marans, Robert W. (University of Michigan) [Paper]

Research from different disciplines has explored the crime-space relationship often with controversial results. In the area of urban design, the most influential empirical study that examined the crime-environment connection was conducted by Oscar Newman (Newman, 1972; Newman 1976). Newman elaborated the idea of defensible space and its most important elements of territoriality and natural surveillance. Later, the concept of defensible space provided the theoretical grounding for the development of Crime Prevention through Environmental Design (CPTED). Based on defensible space theory the surveillance of the space onto which the building entrances open makes the space safe. More recently, a considerable body of research has examined the relationship between the occurrence of criminal events and spatial configuration as measured by space syntax methodology (Hillier, 1998; Shu, 1999). Contrary to the theory of defensible space, most of the space syntax research has shown that crime, in particular property crime, tend to cluster in segregated areas, particularly in those “unconstituted enclosed clusters which Newman considered to be the key to increase local surveillance and hence to exclude causal intrusion by non-residents” (Shu, 1999). These research findings also confirm Jacobs’ (1961) view that the circulation of people and appreciation of public spaces are crucial elements to the urban vitality and that natural surveillance is a good deterrent to criminal activity. However, not all space syntax research has supported these findings (Reis, Portella, Bennett, and Lay, 2003). The controversial results point to the fact that the relationship between space and crime occurrence is not a simple one.

This paper reports an ongoing study that examines the relationship between spatial configuration as measured by space syntax methodology and the actual crime locations in town of Cary, NC. Data for this research include crime event locations obtained from town police records, census data, street network data, and parcel based land use data obtained from the tax assessment database. In order to explore the persistence of the relationship between spatial configuration and crime event locations, we analyzed 1994 and 2002 data separately. We conducted separate configurational analysis for these two years and obtained spatial configuration parameters, which included global integration, local integration, and street connectivity. Second, we spatially locate the crime event locations using the geographic information systems (GIS) technology. Since Cary is a relatively “safe” place, we assumed that a single twelve-month period will not yield enough crime data for analysis. To overcome this problem, for each time period, 1994 and 2002, we included a three-year crime data, 1993–1995 and 2001–2003, respectively. Finally, we performed spatial/statistical analyses for the two time periods separately in order to understand the role of spatial configuration in crime event locations. This analysis points to changes in space-crime relationships.

Keywords: crime, urban, space syntax, geographic information systems

CONFLICT AND CONTINUITY BETWEEN THE ‘OLD’ AND ‘NEW’: COMPARISON OF SPATIAL CONFIGURATION OF TWO CITIES IN CHINA

Long, Yixiang and Baran, Perver (North Carolina State University) [Poster]

As the capital cities of Hunan and Zhejiang provinces, Changsha and Hangzhou are well-known traditional cities in China. Both cities have similar characteristics in term of climate, population, size, natural features, and tourism attractions. Moreover, both Changsha and Hangzhou have a long history, which

THEMATIC
ABSTRACTS

Cities &
Small Towns

Cities/
Suburbia/
Exurbia

dates back to 1,027 B.C. and 221 B.C., respectively. However, the continuity in development of Changsha was drastically affected by the big fire, Wenxi, in 1938. This disaster destroyed almost 95 percent of buildings in the city. The whole city underwent a large-scale reconstruction after World War II as a new city. As a result, Changsha is characterized as an “old” city with interrupted continuity, or simply a ‘new’ city. This study attempts to compare the spatial configuration of these two cities by utilizing the space syntax methodology, which is a syntactic and topological approach for analyzing urban morphology and spatial configuration based on the space syntax theory, developed by Hillier and his colleagues (Hillier & Hanson, 1987; Hillier, 1996). We have already developed the axial maps for Changsha and Hangzhou. The analysis will include comparison of syntactical properties including global integration, connectivity, and local integration of the spatial configurations of these cities. We will also compare the two configurations for their degree of intelligibility, defined as a relationship between connectivity and global integration. Finally, we will analyze the location of ‘live’ center, centrality, within the overall spatial configuration for both cities (Hill, 1999). The initial analysis has indicated that beside the similarities between the spatial configurations of these cities, there are also differences. The most important difference is found in the degree of intelligibility. As we expected, the intelligibility of Changsha, the ‘new’ city, is noticeably lower than that of Hangzhou, the ‘old’ city. Simply said, Hangzhou has a spatial configuration that is easier to understand than that of Changsha. Overall, this comparative analysis will point to those aspects of spatial configuration in Chinese cities that are changing as a result of massive urban reconstruction.

Keywords: spatial configuration, space syntax, urban, China

**DEFINING SPACE WITH THE INVISIBLE:
BOUNDARY-MAKING ON SIDEWALKS**

Fernando, Nisha A. (University of Wisconsin – Milwaukee/ University of Wisconsin Stevens Point) [Paper]

Among the plethora of urban spaces that exist between buildings, sidewalks play a unique role. They not only move urban pedestrians from one space to another but also act as open spaces from where the urban streetscapes are to be viewed and as breathing spaces immediate to the tightly knit urban fabric. In some cultural contexts where urban life is often experienced and celebrated in the outdoor public arena, urban commercial sidewalks also become the quintessential communal spaces. Social, cultural, symbolic activities occur simultaneously with commercial activities; the latter feed and provide the backstage for the former. There are no physical and tangible spatial components to separate these different activities; the spatial choices and demarcations are understood collectively by the users. This tacit knowledge is in turn fed by the socio-cultural knowledge and practices of the society of a given cultural context. This research study presents evidence of how spatial boundaries are created on urban commercial sidewalks in four different cultural contexts. The study considers different ethnic enclaves in the same city as cultural entities of their own and based on this conceptual view, it draws datasets from different cultures from Chinatown (New York), Little Italy (New York), Mid-town Manhattan and Sri Lanka. The variations of sidewalk uses for commercial, social, cultural and symbolic purposes are discussed and the ways in which invisible spatial boundaries are created are analyzed. The data are compared to demonstrate similarities and differences across cultures in (a) how space is cognitively but not physically divided, (b) how these spatial divisions follow tacit rule systems embedded in a culture, and more importantly, (c) how the act of boundary-making on sidewalks expresses various aspects of spatial negotiation, demarcates individual and group territoriality, and communicates socio-cul-

tural identity. The data will shed light on similarities across cultures as well as on culture-specificity of the uses of sidewalks in urban commercial streets.

Keywords: Urban sidewalks, culture, spatial boundaries

**THE IDEA OF ‘CITY’ –
A WORKING DEFINITION**

Fisher, Matthew (Iowa State University) [Paper]

Let’s begin with a hypothesis: the term “city” is no longer a viable name in reference to the contemporary urban environment. We need to define our terms. Traditional definitions of “city” include “an inhabited place of greater size, population, or importance than a town or a village; (Miriam – Webster Online Dictionary; center of population, commerce, and culture; a town of significant size and importance.” (American Heritage Dictionary) The city is “a relatively large, dense, and permanent settlement of socially heterogeneous individuals” according to Louis Wirth (1938), or “a point of maximum concentration for the power and culture of a community,” in the words of Lewis Mumford (1938). In contrast to these familiar definitions, I offer an alternative approach that defines “city” as an idea most clearly articulated in an ancient figure: the Egyptian hieroglyph – “newt.” Following the work of Rykwert (1976), I use the concept of an “idea’ in a classical sense, referring to both an ideal and a figure. Through hermeneutic interpretation, the archetypal diagram/sign provides the primary terms for this experimental definition of the term ‘city’, articulated as a spatial order, a dynamic order, and as social order. Interpreted as a spatial order, the city is defined in terms of spatial discontinuity, enclosure, partition, center and boundary; as a dynamic order, it is defined in terms of circulation, crossing, and intersection of flows, delay, exchange, and storage. As a social order, the city is defined by the distinction of inside and outside, interaction and social exchange, a shared center, and a combination of meshwork and hierarchy. Defining ‘city’ in terms of the idea of the ancient hieroglyph offers us several tools for the analysis of

existing urban settlements. Drawn from the ancient figure, the idea of city can be described and mapped in terms of boundaries, flows, grain, and concentrations considered relative to spatial, dynamic, and social interpretations. To demonstrate the efficacy of these mapping tools two urban settings, metropolitan Des Moines (approximately 500,000 population) and “Chicagoland” (approximately 9,000,000 population), are examined and analyzed as a test of the initial hypothesis. While the results will not be conclusive with this limited testing, significant insights are uncovered in the analysis with regards to case studies as well as the spatial, dynamic, and social order that permeates them. It will become evident in both cases, however, that the idea of ‘city’ no longer applies to the current condition of these urban settings. Nonetheless this analytical definition of city as a spatial, dynamic and social order offered in this interpretation of the ancient hieroglyph offers us greater clarity about what has changed, what has been lost and gained, and the choices we are currently faced with in the contemporary urban environment.

Keywords: urbanism, urban development, mobility, theory, case studies

IMAGE AND PERCEPTION OF MEXICO CITY

Ortiz, Eva-Leticia (National University of Mexico) [Poster]

City has been subject of analysis and reflection of diverse specialists from distant times, that have been generally centered in their materiality and its urban reality (Milanesio, 2001), being little interested in the analysis of its representation. This vision and how people perceive the structure of the cities in which they lives and coexists daily, is the origin and reason for this work. The constructed, architectonic or urban environment can be considered as a communication form. A non-verbal form facilitating or inhibiting diverse human activities, taking part and serving as a catalyst of behaviors. It is not very often recognized that the space of the city offers origin and

consequence to our behavior. The component city and its manifold conforms the map of daily activities of those of us who inhabit it. To understand the city and to read it in a clear and useful way is a citizen right and therefore an obligation of those who design, plan and operate the urban space. In this sense, this study of the city appreciates the point of view of the user, not of the specialist or creator, even though are users of the city as well. For that reason, in this project the concept of cognitive mapping is considered fundamental and will allow us to know the other point of view and to approach to the collective image/the public image of the city.

To understand how the collective image/the public image of the city is created will allows us to be able to help to decipher how this image is used and how it influences the daily life of city inhabitants. Understanding the collective image allows us to begin generating recommendations which reinforce points of interest in the city and to improve the image city simultaneously, particularly through efficient city use by inhabitants. Within the city is where most of the population is concentrated. The city serves as a formidable, inexhaustible laboratory in which on a daily basis we can focus upon the diversity of urban subjects. It is indeed the city which is the scene that supports the daily life of those who inhabited it. The city exerts a great influence, more often times quiet than not, upon the way we think, live and tolerate each other. It is the urban setting which has the means to potentially modify our systems of values, our style and our quality of life. The perception of the city is not always simple to understand; although the phenomena that constitute it have been studied for a long time by diverse disciplines aimed at explaining and to understanding the behavior of the individuals in the city. Only in recent times have social sciences penetrated this inhabitable space; almost exclusively in the territory of design professionals, who still nowadays focus little on this investigation, particularly failing to acknowledge that one the weakest points in the field has always been a lack of evaluation and feedback regarding design, landscape design or urban design.

**RE-INHABITING FROGTOWN:
MIGRATION, URBAN USES & FORMS**

Brand, Julie (University of Minnesota) {Poster}

While discussions of place attachment have often assumed the importance of stability, there seems to be growing interest in how migrant populations engage the built environment at “multiple, interlocking scales” (Bender, 2001). The architecture that results from transnational migration has not been fully studied; some existing approaches are limited by inquiries restricted a limited range of scale while others are based in static frames of reference. Approaches grounded in theories of the everyday (Kerr, Rendell & Pivaro, 2001) have recognized the agency of inhabitants in the creation of such spaces and focused on qualitative aspects of near environments, but have often neglected the larger landscapes in which everyday environments are nested. Writings on specifically cultural impacts on built form have, at one extreme, simply valorized the inhabitants of everyday environments (Millar, 1999). At another extreme, such writing has remained self-referential, dismissing the possibility that cultural identities are mutually constituted (Blin, 1997). The complex, dynamic phenomena surrounding migration and resettlement (Abu-Lughod, 1992) – such as acculturation, and urban inhabitation – require nuanced approaches and inquiry at a range of scales.

This case study investigates the architectural artifacts of multiple scales of movement and inhabitation in Frogtown, a neighborhood with a high transnational population, in St. Paul, Minnesota. It described a) migration of people and goods through Frogtown, b) alterations to and the re-inhabitation of the urban environment, and c) ways by which existing structures were spatially and materially hybridized to suit needs distinct from those for which they were originally built. The resulting maps and diagrams related human and material traffic in Frogtown to alterations to urban and near environments that resulted in new spatial uses and unique, hybridized forms. Urban uses and forms were found to be distinct from existing models, such as the neighborhood unit concept or

new urbanism. Near environments evidenced alterations that reflected specific attitudes toward building integrity and ownership, climate, topography, and social interaction. The re-inhabitation of Frogtown indicates that, even as migrant populations are constrained by the environment, they exert their preferences on it in ways that result in forms and patterns of use that belong neither entirely “here” nor entirely “there”. This process and its physical results merit further study if we are to more fully understand how attachments to place are formed.

Keywords: Culture, urban (city), aesthetics/meaning/assessment, case study

**INNER CONFLICTS IN NEWCOMERS
TO NEW YORK CITY: A LOVE-HATE
RELATIONSHIP?**

Imamichi, Tomoaki (City University of New York) [Poster]

Twenty newcomers to New York City completed a survey questionnaire and an interview on their experiences in their new environment. Though on the average participants expressed a moderate satisfaction with living in New York City, they did not seem to feel neutral about their experience. The item on the questionnaire “wanting to keep living in New York” had a high standard deviation, and none of the participants rated the item “wanting to move from New York” neutrally, showing very polarizing responses on these particular items. In the interviews some participants hinted at a love-hate relationship as epitomized in the quote: “Some things I love, some things I hate,” with numerous likes and dislikes, that average out to a neutral response on their overall satisfaction with New York, a 4 on a 1 to 7 Likert-scale. Yet hidden underneath is an intense psychological dynamic in the newcomers to New York City. Participants were often caught between conflicting valences, between two or more alternatives that seemed equally attractive or repulsive, or each alternative having both positive and negative aspects. Newcomers also found them-

selves in a role that was neither that of a tourist nor that of a native, as newcomers are more familiar than the tourist, yet less familiar than the native, with the current environment. On the one hand, like tourists, newcomers felt the need to explore the environment, on the other hand, like locals, newcomers needed to make a living in the same environment, and found themselves being annoyed by tourists. While on the one hand participants were complaining about the rudeness of New Yorkers, on the other hand participants also described themselves as being more aggressive and less nice. Noteworthy were the contradictory responses given between and within participants. Successfully dealing with conflicting valences and coming to terms with contradictions may be an indicator of adjustment. Environmental transitions some of the participants underwent included international, urban-suburban, and from a private-car to a public-transit culture. The same participants mentioning not missing owning a car were also mentioning that they were missing driving. While frequently the subway was mentioned as a valuable resource, it was complained about often. Some of the transitions from a private-car to public-car culture were not merely a change of transportation mode, but a change in the environment that lacked ‘gigantic supermarkets and one-stop shops’ missed by some participants, which is characteristic of private-car cultures.

Keywords: spatial behavior, spatial cognition, behavior change, culture, urban

**STREETS AND SIDEWALKS: CONTESTED
SPACES IN A PHILIPPINE CITY**

Akers, Mary Anne Alabanza (University of Georgia) and Akers, Timothy Alan (Kennesaw State University) [Paper]

Global cities are not only focal points for the production of goods and services that feed the global economy but are centers for an increasing informal sector (Sassen, 1991). In the Philippines, the informal sector consists of approximately 19 million Filipinos,

which is over 50% of the total employment population, and contributes about 44% to the country’s Gross National Product (Asanza, 2003). Sidewalk vendors comprise a significant portion of the informal economy. They are visibly present in urban landscapes and are integral to making streets alive, active, and successful. However, their presence breeds spatial conflict as they push pedestrians onto the streets and ongoing traffic. Although pedestrian/vehicular accidents are not prevalent in the Philippines, compared to the United States, conflict still arises as pedestrians and vehicles “share” the street. Often times, these contested spaces emerge as neutral zones as private and public spaces are juxtaposed and blend together (Danesh, 1999). The proposed paper will describe spatial conflicts found in the streets of a fast growing upland city in the Philippines and will analyze the impacts of these conflicts on vendors’ businesses, health conditions and well being, and overall street quality. Specifically, the paper will ask the question, “To what extent does the degree of spatial conflict influence vendors’ work spaces and street environments?”

- The data for this paper was collected over 5 years:
- 1999 Survey of socio-economic conditions of 211 street vendors
 - 2003 Survey of health conditions of 187 street vendors
 - 2004 Measurement of air quality conditions and quality of vendor sites

To operationalize the degree of spatial conflict, an index of more than 33 streets was developed by using variables such as: square footage of vendors’ spaces, sidewalk width, pedestrian traffic during peak hours, vehicular counts during peak hours, building height and land use (to measure density of activity), distance to nearest public utility vehicle stop, and number of pedestrian crosswalks (above ground and on street). This study demonstrates that spatial conflict can have both positive and negative impacts on vendors, pedestrians, and drivers. It also explores the relationship between spatial conflict and overall street quality. The paper ends with a section describing solutions to managing this conflict and what city experts can do to proactively plan for rapid urban growth in the developing world.

Keywords: Developing country, low-income users, city planning, economic development

References

Asanza, Anna Lucila. *Extension of Social Protection in the Philippines*. International Labour Organization, Manila. April 25, 2003. www.ilo.org/public/english/region/asro/manila/2003/mar/espp.htm

Danesh, Abol Hassan. 1999. *Corridor of Hope: A Visual View of Informal Economy*. Lanham: University Press of America, Inc.

Sassen, Saskia. 1991. *The Global City: New York, London, Tokyo*. New Brunswick, N.J.: Rutgers University Press.

URBAN SPRAWL & CAR DISCRIMINATION:
ELDERLY & TEENAGERS IN EXURBIA

Despres, Carole (Universite Laval, Quebec), Pinson, Daniel (Universite Paul Cézanne, Aix-en-Provence, France), Ramadier, T. (Universite Louis Pasteur, Strasbourg, France) [Paper]

In the communities of Aix-en-Provence, Strasbourg or Quebec, the ideal of home is largely defined by the triad house/garden/nature found at the outskirts of the city, with the automobile as the privileged mode of transportation. Originally associated with single-family houses and young nuclear families, this car-dependant lifestyle leaves little autonomy for those in society who do not have access to a personal car, namely teenagers and elderly. This communication compares and discusses the results of an international comparative study between the universities Paul Cézanne and Louis Pasteur in France and the University Laval in Canada, in an attempt to illustrate how those exurban residents excluded from auto-mobility live their relationship to the city, namely in term of access to services, leisure and amenities.

Keywords: urban sprawl, car mobility, teenagers, elderly, international comparative studies

SMALL TOWNS &
NEIGHBORHOODS

THE DILEMMA OF STOREFRONT
CHURCHES: BALANCING PRESERVATION,
ECONOMIC REVITALIZATION AND
EQUITABLE DEVELOPMENT

Kutty, Asha (University of Wisconsin Milwaukee) [Paper]

There are several projects in the US which narrate/preserve/commodify aspects of the past in order to help localities cope with challenges of the present and future. These efforts offer a wide array, ranging from public art, to architectural preservation, to town planning. While they have succeeded in a number of ways, (such as giving voice to traditionally under-represented pasts, through the installation of public art) they continue to fall short in certain domains. These shortcomings are particularly found in the architectural preservation and town planning projects that tend to commodify aspects of a locality’s past to promote economic development. While these projects help localities advance economically, they do so often at the cost of a locality’s authentic personality.

This paper debates the pros and cons of these existing practices. It subsequently illustrates this debate using an ongoing conflict over the preservation of storefront churches in Sherman Park, a historical, fairly poor and largely African-American inner city neighborhood in Milwaukee. The neighborhood recently won a Main Street grant from the National Trust for Historic Preservation, and is involved in revitalizing its historical business district to promote economic development. One of the strategies in its revitalization program is to renovate the several rundown storefront churches that line its historical business district to shops and boutiques, through facade refurbishment and other architectural preservation techniques. The community development group involved in the revitalization efforts, argue that the

storefront churches do not bring jobs to the neighborhood (which suffers from unemployment), and that shops could provide service sector jobs. In addition, shops and boutiques would attract investment from outside the neighborhood and help it revive economically. However, the storefront churches offer a wide array of dimensions that are significant to the poorer African-American community in the area. They are significant psychologically, historically, sociologically, ideologically and politically to this community. This paper addresses the conflicts between the strategies of the community development group to convert these storefront churches to shops and promote economic development, and the varied dimensions of support that these storefront churches offer to the poorer local African-American community.

An interdisciplinary conceptual framework designed for this case study is based on place attachment theory (from environment psychology) and politics of place theory (from social history and cultural geography). Place attachment theory (Manzo, 2005; Altman & Low 1992) is applied to study the social use and affective relations that locals have towards the churches. These relations are contextualized using politics of place theory (Hayden, 1995; Harvey1996, 2000; and Lefebvre, 1991). Domains such as the historical emergence of the storefront churches, the socio-political and economic ideologies involved in their production and in the conflict over their preservation were studied. This case study illustrates the dilemmas involved in balancing preservation, economic revitalization and equitable development, and generates ideas regarding steps to take towards future practices.

Keywords: Preservation; Neighborhood/community planning; Social issues/social justice (including class, race, sex, ethnicity, economic etc); Place attachment/place memory; Urban

	<i>FINDING MIDDLE GROUND FOR DESIGN: NORTH PHILADELPHIA FROM INSIDE AND OUT</i> <i>Harrison, Sally and Milestone, Juris (Temple University, PA) [Paper]</i> Architecture education, especially as an undergraduate course of study, seeks to prepare students for a profession they hardly know and for citizenship in a new world. Toward this end, the design studio typically provides a surrogate experience in addressing formal, spatial and human problems. But limited by time, by the geographic space of the studio, and in some cases even by design pedagogy itself, the design student works in an intellectual context that is artificially constrained in order to meet the needs of professional preparation. The paper discusses a University-based urban design project that was undertaken in an economically neglected post-industrial neighborhood of North Philadelphia. Seeking to provide a context for on-going neighborhood planning and design, a well-established arts organization in the neighborhood enlisted the simultaneous assistance of two local universities whose work at different scales were meant to be mutually reinforcing. One university involved its graduate planning studio and the other its undergraduate architecture “urban design” studio. The latter course was co-taught by two architecture faculty with the critical participation of an anthropologist trained in urban and visual anthropology. This paper addresses the project from the perspective of the architecture studio that focused on generating design proposals for revitalization of three key blocks of a pedestrian shopping street that forms the vital neighborhood center. Having an anthropologist involved in this process breaks from a tradition within architecture of utilizing anthropology for its knowledge of traditional or non-western building and design. Here the anthropologist became a coach in qualitative research methods that enhanced activities like interviewing, observation, community entry, and presenting ideas or proposals. Also, the anthropologist helped by offering critical perspectives in studio, during crits, and on juries that challenged
THEMATIC ABSTRACTS	
Cities & Small Towns	
Small Towns & Neighborhoods	

assumptions about, but also added depth to discussions of culture, social structure, urban processes, and historical context. The paper examines a process in which design students were challenged to undertake research-based design, exploring a middle ground that incorporated the “inside-ness” of the human, cultural perspective and the “outside-ness” of the urban systems perspective. As an initial basis for design, the studio used both the traditional architectural methods of formal research found in context mapping, visual inspection and case study. But these were significantly augmented, and in some cases transformed, by the perspectives and methodologies of anthropology and planning. This work, generated further intra-community dialogue on neighborhood development issues. It also challenged traditional studio teaching formats and contents. In addition, students have experienced a place from the inside out (as best they could), and have understood the contributions of both associated and often un-associated disciplines in forming the built environment. A framework has emerged for:

- Engaging in intercultural/interdisciplinary communication and critical exchange,
- Defining what and for whom is a “useful” as a product, and
- Reflecting upon, and either abandoning or carrying through ideas generated as theoretical proposals, or as social accidents or conflicts

Keywords: Social Issues, Culture, Place attachment/ place memory, Urban development, Participation

FROM CONFLICT TO CONCORD: FACADE COLOUR AND AESTHETICS RESPONSE

O’Connor, Zena (University of Sydney, Australia) [Paper]

Environmental color contributes to a ‘sense of place’ and the imageability’ or character of a particular region (Lenclos, 1982; Lynch, 1960; Porter, 1997). Façade color in particular is considered one of a number of building attributes that may contribute to aesthetic response to the built environment (Nasar, 1994). It is

understandable therefore that planning instruments frequently include guidelines, references and directives relating specifically to façade color (Stamps, 2000). In Sydney, as in other parts of the world, these planning instruments often suggest that façade color should be harmonious or sympathetic in relation the surroundings. Not only are these terms vague and ambiguous (Stamps, 2000); but they can lead to controversy and conflict. However, few studies exist that focus on the relationship between façade color and aesthetic response, or the effect that façade color may have on judgments about the congruity or size of a building relative to its surroundings. This paper reports on a study that investigated the façade color within the context of Nasar’s (1994) probabilistic model of aesthetic response as well as current planning instruments in Sydney, Australia. The main research question focused on the extent to which changes in façade color influenced overall aesthetic response. Secondary research questions investigated whether changes in façade color had an impact on judgments of size and congruity; and, finally whether preference and individual differences had an impact on overall aesthetic response. A quantitative approach was adopted and quasi-experimental research design was used. Digital technology combined with the Latin-square research design allowed for four façade color treatments featured on four buildings to be evaluated in a randomized manner. A semantic differential rating scale was used as the measurement instrument and the following constructs were included: aesthetic response comprised of an evaluation component, an arousal component and a potency component (Russell et al, 1981; Russell, 1988); congruity (Janssens, 2001; Wohlwill & Harris, 1980); size (Osgood et al, 1957) and preference (Nassauer, 1993 Ou et al, 2004). A sample group of 288 participants took part in the study and these comprised two main groups: post-graduate part-time university students and members of the general public. The four façade color treatments used as independent variable was used to identify and compare the variance between responses and façade color. The study found that aesthetic response to façade color may be less nomothetic and more idiographic than existing planning instruments seem to suggest. Judgments about

the congruity and size of a building also varied with changes in façade color. The implications arising from this study suggest that planning guidelines regarding façade color may need to become less doctoral and more democratic and consultative in approach; and a new approach to façade color evaluation is proposed. In addition, the study suggests that façade color may be an effective tool for minimizing or maximizing the visual impact of a building.

Keywords: Aesthetic, urban design, design review, city planning, quantitative research

SEGREGATION, MEMORIES, AND SENSE OF PLACE IN A SMALL-TOWN THEATRE

Allen, April (University of Georgia) [Paper]

Memories of growing up in small-town America vary by individual and by race. Interviews of African-American and Caucasian participants were tape-recorded by the researcher in other to discover memories and feelings regarding a small-town theatre and the reflections of growing up in the segregated south. During the days of segregation, African-Americans were restricted to the theatre balcony and had a separate entrance door and staircase up to the balcony. When the theatre opened, there was a dedicated entrance for African-American patrons with a little booth inside, similar to a hatcheck stand. Entering on the west, alley side of the theatre, African-American patrons purchased their ticket and proceeded upstairs. A sign stating “Colored Only” with an arrow directing African-Americans to the back stairwell still survives to this day. The entrance for African-Americans was changed to the front entrance during the later years of segregation where they were routed down the hallway by the concession stand and up the back stairway. Not only did they have to sit in the balcony, African-Americans were required to sit in the back of the balcony. The balcony was divided into two sections, a front and back section, with a low partition between the two sections. African-Americans sat in the far back section of the balcony. Seats

in the back section of the balcony were wood frame, not upholstered, as they were downstairs. So sitting in a hard wooden seat in the very back of the balcony was a very different experience from sitting in an upholstered seat of your choosing. In interviews some African-Americans expressed resentment about being relegated to the balcony while others just accepted it as “the law of the land”. After integration many African-Americans continued to sit in the balcony where they had sat for many years and felt at home. Some African-Americans expressed feeling ill at ease sitting downstairs and felt as if the Caucasian patrons did not welcome their company in these early days of change in the south. The theatre was found to represent a sense of place to participants of the small-town in southwest Virginia, but this sense of place varied for Caucasian participants that were free to sit where they chose in the theatre and African-Americans that were relegated to the back of the balcony on wooden seats during the era of segregation. Some individuals were resentful of this time in their history and others were accepting of segregation as “the law of the land”. Regardless of their experience the Caucasian and African-American participants shared a fondness for their town and the theatre building that had stood on Main Street since 1911.

Keywords: segregation, memories, sense of place, small-town, theater.

SOCIAL CAPITAL AND ITS IMPACT ON
NEIGHBORHOOD SATISFACTION AND
THE DESIRE TO MOVE

Marans, Robert W. and Carter, George R.
(University of Michigan) [Paper]

In his seminal book *Bowling Alone* (2000), Robert Putnam contends that the U. S. has experienced a decline in social capital during the past several decades. Furthermore, he argues that this decline has numerous consequences for our communities including a decline in neighborhood quality of life. Using data from a quality of life study involving more

than 4000 people in the metro Detroit area, this paper examines indicators of social capital as they relate to two measures of neighborhood quality of life – neighborhood satisfaction and the desire to move outside the neighborhood. Indicators of social capital considered are neighborng and community participation dealing with the neighborhood. Following a brief review of Putnam’s position on declining social capital and its consequences, the paper discusses the quality of life study and the types of data collected (Marans, 2005). In addition to tapping the thoughts and behaviors of the respondents vis-à-vis a standardized questionnaire, objective information about their neighborhoods was collected. The measurement of environmental conditions for the sample has created opportunities to explore objective-subjective links and behavioral responses. The paper then presents and statistically tests a hypothetical model showing relationships between objective conditions, measures of social capital, and the two measure of neighborhood quality of life. The large size of the sample through the metro Detroit area enable us to test the model for people living in the core city (Detroit), for people living in the older and newer suburbs, and for those living in small towns with the metro area. The paper concludes with a discussion of the validity of Putnam’s work and the potential value of the findings for neighborhood planers and designers.

Keywords: neighborhood planning, satisfaction, mobility, quantitative research

References

Putnam, R.D. (2000) *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.

Marans, R. W. (2003) Understanding Environmental Quality through Quality of Life Studies: The 2001 DAS and Its Use of Subjective and Objective Indicators, *Landscape and Urban Planning*, 65(1) 73–83.

UNRAVELING THE APPARENT
CONFLICTS IN REVITALIZING SMALL-
SCALE DOWNTOWN AS THE CENTER OF
RETAIL AND COMMUNITY LIFE

Wilcox, Mary Kay (Iowa State University) [Paper]

Older town centers were once the only place for the most significant offices and the best retailing. Once thriving, many of these business districts were devastated by post-World War II transportation and home mortgage policies that encouraged flight to the suburbs (Wolf). In traditional town centers, retail was the glue that connected a multitude of public places – government offices, parks, school, and libraries. The mixture of retail and community facilities created a setting for repetitive chance encounters with friends and neighbors that built and strengthened community bonds. The movement of retail away from Main Street was in pursuit of retail efficiency – providing easy access with parking lots located directly in front of store entrances (Achimore, 1993). But retail developers know that even though customers will always be interested in convenience they also desire to interact in the ambience of a community setting. Developers now consider whether their retail strip centers can support “community life” with public amenities in attracting customers (Achimore, 1993). It has also been widely acknowledged even by mall developers that people are experiencing mall saturation and have become bored with the inwardly focused, disconnected and placeless shopping centers. As old malls age and decline in market appeal, new forms are emerging that appear to mimic many aspects of the abandoned town center (Southworth, 2005). The opportunity for small downtowns to offer retail with a community ambience is complicated by their compact forms. Since most downtowns predate the popular use of the automobile, the challenge is how to retrofit a compact district with the needed parking and pedestrian facilities without harming the downtown’s fabric and qualities. But can small towns support community life as they once did, and still provide adequate return on investment? Some retail specialists will argue

that in today’s market, the possibility of satisfying the often conflicting needs and wants of retailers, shoppers, and community planners in the context of revitalizing their town centers is in question. This author contends that the goals of retailers (concerned with efficiency and access), and the goals of community leaders (to ensure the pedestrian-scaled fabric that supports community life) are not in conflict, but dependent upon each other for their mutual success. Shopping remains a major leisure activity for Americans, second only to watching television (Goss, 1993). Recognizing that shopping can be an important stimulus to public life and creating the stage for community, in turns supports retail has important implications for planning and urban design. With a lack of mutual understanding among stakeholders about the interdependent ingredients in creating a successful downtown, many communities make uninformed decisions about issues of parking, access and convenience, streetscape design and safety, and the factors that influence people to get out on the streets participating in the public realm.

This author is working with a stakeholder group concerned with the revitalization of Mount Pleasant, a town of 8,500 in southeast Iowa. As a county seat, Mount Pleasant’s retail streets frame a small public square where the community holds many events. With Mount Pleasant as the laboratory, the goal of this analysis is to create a framework for approaching urban design decisions for downtown revitalization based on applied research that reflects an understanding of human behavior in attracting and retaining users. Urban design recommendations for Mount Pleasant will be presented based on research from the shopping center industry and successful towns to include the roles of street trees, sustained pedestrian activity, public facilities, wayfinding, visual access and parking structures, in increased retail sales including particular tools that have been successfully used elsewhere such as traffic calming devices.

Keywords: case study, landscape architecture, urban development, spatial behavior

	Resources Achimore, A. (1993, August) “Putting the Community Back into Community Retail,” <i>Urban Land</i>.	
	Southworth, M. (2005), “Reinventing Main Street: From Mall to Townscape Mall” <i>Journal of Urban Design</i>, 10 (2) 151–170	
THEMATIC ABSTRACTS	Goss, J (1993) The ‘magic of the mall’: an analysis of form, function, and meaning in the contemporary retail built environment, <i>Annals of the Association of American Geographers</i>, 83, pp. 18–47	
Cities & Small Towns	Wolf, Kathleen (2004, January) “Nature in the Retail Environment: Comparing Consumer and Business Response to Urban Forest Conditions,” <i>Landscape Journal</i>, 23	
Small Towns & Neighborhoods		
	<i>Nettles, Sandra R. Murray</i> (Georgia Southern University) [Paper]	
	Environmental conceptions of teaching and learning emerged during the 1970’s in psychology and other disciplines. In ecological psychology, for example, Trickett and colleagues (Trickett, Kelly, & Todd, 1972; Trickett & Moos, 1973; Trickett & Todd, 1972) examined social contexts of schools, conceptualizing environments at multiple levels of analysis, including persons (teacher and student), locale (urban vs. rural), and school organization. In developmental psychology, Bronfenbrenner (1979) identified links (called mesosystems) between and among immediate contexts or Microsystems (such as peers) of the developing person. Architect Christopher Alexander and his colleagues introduced the term “network of learning” in A Pattern Language (1975), a lexicon that identified recurring environmental problems and their solutions. In the network, learning is decentralized. There are “workshops, teachers at home or walking through the city, professionals willing to take the young on as helpers, older children willing to teach younger children, museums, youth groups traveling, scholarly seminars, industrial workshops, old people, and so on. Conceive of all these situations as forming the backbone of the learning process (p. 102). ” In many ways, Alexander’s vision for the network of learning reflects social and physical contexts of education in African-American communities before schools and neighborhoods	were integrated, when learning opportunities were distributed across the continuum from informal to formal. This paper presents the results of a narrative inquiry into the network of learning in Atlanta’s Washington Park during the mid-20th century. Washington Park, a black neighborhood developed following World War I, was named in honor of Booker T. Washington, the great educator. Early in the 1920s, two enterprising black men built most of the houses in Washington Park. By the 1950’s, the neighborhood had dozens of spaces for learning. Among them was the “hut,” a small, one-room cinderblock building on the grounds of E.R. Carter Elementary School; Washington Park, the first recreational facility for African Americans in Atlanta; West Hunter Branch library, a few blocks from the park; churches; and the business district, with a black-owned pharmacy, hospital, Paschal’s restaurant, and photography studios. However, during the late 1960’s, the network of learning in Washington Park was weakened by social forces, including crime, which kept learners away from the park and other places beyond the security of home, and the intrusion of MARTA, the city’s rapid transit system. The inquiry used published sources, including a published narrative written by the librarian at the West Hunter Branch; documents and publications from city archives; narratives of Booker T. Washington and W.E.B. DuBois, professor at Atlanta University and contemporary of Washington ; and personal recollections and those of my family. I grew up in Washington Park, and the results of the inquiry are presented as an environmental memoir. This inquiry is concluded by outlining a new conception of the network of learning that addresses the design of learning environments to meet the intellectual and psychosocial needs of African-American and other children who face multiple impediments to success in schools. Keywords: social issues, neighborhood/community planning, phenomenology, psychology, children/youth

CONFLICT

URBAN CONFLICT

CURRICULUM OF PLACE: NARRATIVE INQUIRY INTO THE NETWORK OF LEARNING IN ATLANTA’S WASHINGTON PARK NEIGHBORHOOD

		<i>DISCORDANT FRAMES: THE CINEMATIC (RE-) PRESENTATION OF URBAN CONFLICT</i>
		<i>Langhorst, Joern (University of Colorado at Denver)</i> <i>[Paper]</i>
		Throughout history, conflict has been one of the mainstays of conditions of urbanity. Urban space and its patterns of configurations and inhabitation have developed as location of, framework for, catalyst for and response to conflicts. The underlying causes of urban conflict comprise social, economic, ethnic, ecological, spatial and political issues – often overlaid and compounding each other. Very early on, the medium of film engaged issues and conflicts intrinsic to the urban condition, employing a variety of ideological, political and social positions, as e.g. evident in Dziga Vertov’s “Man with a Movie Camera” (1929) or Fritz Lang’s “Metropolis” (1927), the film noirs of the 1940es and 50es, or the apocalyptic visions of “Stalker” (Tarkovsky, 1979), “Blade Runner” (Scott, 1982), or the disillusionment of “City of God” (Meirelles, 2002) If the spatial and cultural form of “city” is a result, however dynamic and ephemeral, of how the aforementioned conflicts and differentials play themselves out spatially and socially, how they “take place”, then film is uniquely suited to understand and analyze these processes. Film as a medium is at least three-dimensional – it adds the dimension of time to the two-dimensional screen, creating a more and more perfect illusion of a four-dimensional – real-space. Parts of actual experience can be provided by film, such as movement, activity, temporal and spatial change. The medium can even create more than perfect illusions of place, it is able to go beyond and change the temporal and spatial context of reality, thus creating a “heightened reality”. It’s “unique and specific possibilities can be defined as dynamization of space and, accordingly, spatialization of time” (Panofsky, 1934:18), it is “free of the limits of time and space” (Vertov, 1984:15–17). Cinematic place (and its constituting processes and conditions) can then be interpreted as subject, setting, character and symbol (Helphand 1985).The change
THEMATIC ABSTRACTS	Conflict	
	Urban Conflict	

in the ways urban conflicts and their “places” are represented in cinema is not only a portrait of their actual qualities, properties and conditions, but also indicative of different perspectives, readings, attitudes, and interpretations, and hence can be analyzed to understand the relationship between society and the processes it employs to resolve conflicts and their manifestation in places. Analyzing a cross-section of films engaging the topic of urban conflict, the paper investigates the manners in which urban conflicts and the urban condition is represented and present inside and outside of the cinematic frame, and to what degree the cinematic frame allows for a projection back onto the frames and conditions of the actual urban situations and conflicts.

Keywords: urban, theory/conceptualization, culture, globalization, aesthetics/meaning/Assessment, representation

HATE: A TIME FOR GROWING CONCERNS. EMERGING ISSUES FOR URBAN DESIGN IN PLACES THAT PEOPLE HATE

Winfield, Fernando and Cortés, Mara (University of Veracruz, Mexico) [Paper]

A great number of texts and consistent research has been focused on the study of the relationship of urban forms and human behavior with regards to violence in neighborhoods and the city (Hall, 2002). The re-emergence of hate issues which seemed to be thing of the past are now posing new challenges for community life. The media, on one side, has helped to increase the awareness of citizens toward new socio-cultural relationships that are taking place and shaping new ways of community life. On the other side, often subjective views are fostered from the media to address generic urban problems from a particular point of reference to specific communities or groups, thus generating a pervasive effect on public awareness and a biased effect on the responses neighborhoods. Unfortunately this results in citizens failing to develop any critical thinking

towards each other. Not only throughout history but also recently, places and people that people hate have become indicators of growing concern within our cities (Winfield, 2001). In its most subjective understanding, hate has been associated with, for example, new comers who in the past and sadly in the present, are envisaged as a treat (Duby, 1995). Why cities are claimed as scenarios for hate? Why people hate certain places and neighborhoods? How hate is being perceived within a city and referred to places and/or neighborhoods? How hate can be identified as an informing issue for public action? What responses and contributions from the point of view of urban design should be addressed to this emerging social issue? This research paper intends to suggest several strategies to answer these questions.

Keywords: hate, places, neighborhoods, responses, urban design

References
Duby, Georges (1995): Año 1000, año 2000. *La Huella de Nuestros Miedos*. Santiago de Chile: Andrés Bello.

Hall, Peter (2002): “The City of the Permanent Underclass” in *Cities of Tomorrow*. Oxford: Blackwell Publishing. 428–468.

Winfield, Fernando (2001): “Violencia y Espacio Público” in *Esencia y Espacio*. No. 12. Mexico: Escuela Superior de Ingeniería y Arquitectura, Instituto Politécnico Nacional (IPN). 19–23. 61550

RUINS, MISUNDERSTANDINGS AND RAGE: REPRESENTATIONS OF URBAN CONFLICT ON FILM

Nevárez, Julia (Kean University, NJ) [Paper]

Urban conflict has been documented in films as representations that within a specific optic and point of view, allow us to glance into the complexities that plague our societies. The purpose of this symposium is to discuss the representations of urban conflict in selected films, to show from different perspectives,

the kinds of conflict that are either staged on the city or address urban issues. It has been argued elsewhere, that in a society where screens have a ubiquitous presence, viewers are not only such, but also consumers and voters. The impact of screens on everyday life, from that perspective, is one with the potential to mold, affect and impact views. It is the purpose of this presentation to dissect and problematize the manner in which social and physical problems are represented in films as an extension of urban conflicts. Different urban conflicts have shaped urban and social landscapes; those have been documented in films that seek to portray the complexity of the forces that by war, epidemics and racial tensions produced landscapes of despair. The films to be content analyzed are: “Crash,” “Welcome to Sarajevo,” and “28 days later.” The analysis of the narratives of conflict presented in the chosen films help: 1) identify the kinds of conflicts represented in the previously mentioned films, 2) analyze the representation of cities in the films, and 3) elaborate and extend the analysis to discuss contemporary social, spatial and cultural dynamics.

Keywords: content analysis, qualitative research, urban sociology, visual representations

CONFLICT RESOLUTION

BEYOND CONFLICT: LANDSCAPE ARCHITECTURE AND THE DENIED LANDSCAPE OF THE PALESTINIAN NAKBAH

Egoz, Shelley (Lincoln University, Canterbury, New Zealand) [Paper]

Landscape and identity are inherent components of culture, one informing the other. Landscape architects have a vital responsibility in the inflecting of landscape for cultural purposes, and critics and historians of landscape architecture have the task of articulating the significance of these contributions. There is no denying the role that landscape

architecture has played in the building of Zionist pre-statehood and the State of Israel since 1948 both in a physical and ideological sense of nationhood building, and it has been documented by Enis (1993, 1994), Helphand (1998, 2002) and Alon-Mozes and Amir (2002, 2004). However, what is denied is an entire layer of the cultural landscape that has been repressed in Israeli public consciousness, within the design of landscapes, and in the historiography of Israeli landscape architecture. This fundamental tier in the landscape of Israel is the landscape that was left behind when of Palestinians fled their villages in the course of Israel’s War of Independence in 1948. This landscape is evidenced by the presence of ruins and rubble of a destroyed landscape amidst a country that was constructing a new homeland. The denial included the unacknowledged appropriation of an indigenous landscape vocabulary by Israeli landscape architects. That is not surprising considering the success of Zionist ideology in constructing a psyche of a nation and its continuing denial of the Palestinian 1948 Nakbah (catastrophe).

After the 1967 war that resulted in territorial occupation the question of the Palestinian refugees gained international awareness.

Scholars such as Edward Said (1992 and 1995) helped voice the plight of the Palestinian people in academic circles. Views amongst Israeli and Palestinian historians and Middle-East analysts about who bears the responsibility for the displaced people are diverse. Some have argued that the 1948 uprooting of about 750,000 Palestinians was driven by a cynical and strategic planned political agenda of “ethnic cleansing” assisted by several massacres (Masalha, 1992; Pappe 2002a and b). Others view it as a coincidental human tragedy, and that a displacement of people is a “normal” corollary of war (Harkabi, 1973; Peleg 1985). All, nevertheless, agree that the consequent Palestinian refugee problem that in the past 57 years has grown to a population of 5 million, most of them residing in Gaza, the West Bank and Lebanon, is at the heart of the on-going conflict.

The official claim of Zionism reflected in the mainstream perception in Israel, has always been that the residents of these villages abandoned their homes

when called upon by their leaders to evacuate their villages temporarily to facilitate fighting, in a belief that the Arab armies would win the war. Hence that view had constituted the Israeli conviction that the responsibility for these refugees lies on the neighboring Arab states. No acknowledgement or accountability for the pain and loss inflicted on another people in the wake of the Zionist revolution is admitted, reinforcing a culture of denial. Further explanations for this denial rest in tensions over land tenure and an innate, or what was, as some would argue, artificially constructed as “the demographic threat” (Bronstein, 2005; Golan-Agnon 2005b), a fear of Jewish annihilation in an Arab dominated region. “National identity... would lose much of its ferocious enchantment without the mystique of a particular landscape tradition: its topography mapped, elaborated, and enriched as a home” (Schama, 1995:15). The local Palestinian landscape was recruited for nation building, becoming the iconic ‘biblical’ landscape depicted on stamps, post-cards and calendars. Indigenous architecture and landscape elements such as arched stone houses, terraced housing, agricultural terraces, vernacular Mediterranean type Bustan gardens and olive groves are part of the repertoire of the contemporary landscape architecture design vocabulary (Aronson, 1991 and 1998; Raz and Flanz 2000; Helphand 2002; Omer 2005). These are euphemistically referred to as “traditional”, “ancient “ or “Biblical” whether consciously or unconsciously contributing to the Zionist ideological myth of *a land without people for a people without a land*. This was part of an effort to create homeland by constructing a strong link between the modern Jewish immigrants and their biblical roots through landscape (Alon –Mozes, 2004) and the Hebrew-izing of Palestinian place names (Benvenisti, 2000). A significant scholarly body of literature about the Nakbah, by Palestinian and some revisionist Israeli scholars known as the “New Historians” (most notable are Benny Morris, Avi Shlaim, and Ilan Pappe) has emerged in the last decade and a half; this includes archival evidence of the destruction and massacres that took place in 1948 (Morris, 2004), a recording of the “forgotten” landscape (Khalidi, 1992a) and a documentation of the re-mapping, and place

naming of “a buried landscape” (Benvinisti, 2000). Slyomovics has looked into memory and architecture in the Palestinian context (1993, 1998).

While some Zionist and non-Zionist Israeli left-wing political groups at the margins of the Israeli society have since the early days of statehood sought justice advocating for the acknowledgement of the Palestinian catastrophe, in the past few years the recognition has become somewhat wider, and several political groups and artists (Shelach, 2001) have begun to acknowledge the loss in an attempt to resolve conflict. The forgotten landscape is now surfacing into Israeli consciousness through groups such as F.A.S.T, the Foundation for Achieving Seamless Territory whose mission is “to expose global abuses of ideological planning” (Shoshan, 2005) and *Nakba in Hebrew* also known as *Zochrot* (‘remembering,’ in its feminine form) who organize tours to pre-1948 Palestinian sites and post signs depicting the original names (Croitoru, 2004; Bornstein 2005). The underlying motivation of these Israeli bodies’ “Nakbah consciousness activity” is a realization that the first step towards conflict resolution and reconciliation necessitates acknowledgment.

This presentation will address the gap of the denied landscape of the Palestinian Nakbah by describing the way designers have ignored it. It will present the case studies of the villages of Ein-Houd and Lifta and discuss the opportunities for Israeli design to contribute to go beyond conflict and reconcile through landscapes of reclamation and commemoration.

Keywords: landscape meaning, social justice, place memory

DEALING WITH CONFLICT AND A WAY TO SOLVE IT: THE UN LOCAL URBAN OBSERVATORIES IN VERACRUZ, MEXICO

Rodríguez, Beatriz (Universidad Veracruzana, Mexico) [Paper]

With the goal: “Better information for better cities”, the United Nations’ Global Urban Observatory (GUO)

addresses the urgent need to improve the world-wide base of urban knowledge by helping governments, local authorities and organizations of the civil society develop and apply policy-oriented urban indicators, statistics and other urban information. The GUO was established by UN-HABITAT in response to a decision of the United Nations Commission on Human Settlements, which called for a mechanism to monitor global progress in implementing the Habitat Agenda and to monitor and evaluate global urban conditions and trends. The GUO works closely with Best Practices and Local Leadership Program (BLP), which was established to make use of information and networking in support of the Habitat Agenda Implementation. Both programs operate under the Monitoring Systems Branch, which has the overall mandate to monitor progress on the Habitat Agenda and the Millennium Development Goals.

In response to this Mexico has developed several responses including the National Local Urban Observatories Network LUO (OUL for its Spanish name: Nacional de Observatorios Urbanos Locales); SEDESOL (Secretaría de Desarrollo Social); Federal Social Development Secretariat, and the Urban Development and Territory Regulation Sub secretary has identified a goal to build the National Local Urban Observatories Networks in Mexico. This project is part of an agreement between the SEDESOL and UN-HABITAT, through the PNUD (UN Development Program) known as: “Preparatory Assistance for organizing the Habitat Development Agency to solve urban poverty in Mexico” (November 11, 2003).

We propose the development of urban observatory to assist in this process. Urban observatories select, recollect, manage and apply statistics and indicators to measure and follow up on the urban conditions in cities, and act as a participant in the decision making process, helping governments, local authorities and civil society groups to develop and apply policies oriented and guided by those urban indicators, statistics and other urban information. There are numerous State Programs in Veracruz – 4 Urban Observatories in different cities: Córdoba, Coatzacoalcos, Veracruz-Boca del Río and Orizaba. The state governor, the Universidad Veracruzana signed an Agreement with

United Nations, particularly with the UN Habitat representatives, to start the LUO (OUL).

The main objectives of these urban observatories are:

A) to identify the conditions, trends and proprietary issues, through research and Consultive processes in with local authorities and organizations of the civil society (industrial, social and academic);

B) to cooperate with other LUO (OUL) already established;

C) to create an electronic or physical mean or information to keep the social groups informed of the activities developed; and

D) to have meetings to make comparative analysis of indicators and to present the better practices for better cities.

This collaborative effort aims to incorporate the Habitat Development Agencies that have been already promoted and created by the Habitat Program in the state of Veracruz and fulfill their objectives, functions and activities as Local Urban Observatories. The Habitat Development Agencies are the local organism responsible for the urban planning process. Each has to work closely with a university; in this case academics of the Universidad Veracruzana, in coordination with other organizations of the civil society, both public and private. Through working together with the Habitat Development Agencies, we expect the Local Urban Observatories to create strong ties and connections which will effect the process of creating urban policies in the city.

Keywords: urban development; sustainability; participation; developing country; neighborhood/community planning; city planning; interdisciplinary; case study; action research

**DESIGNS FOR PEACE: STUDENT INTER-
PRETATIONS OF INTERIOR ENVIRON-
MENTS THAT PROMOTE WORLD PEACE**

Beacham, Cindy (West Virginia University, WV)
[Paper]

We face challenges in today’s world that were unthinkable several decades ago. The hopes for peaceful coexistence felt at the end of the cold war, and again at the collapse of the Berlin wall have all but vanished in light of the global terrorism over the past 10 years. Research has been conducted for decades that marginally connect the idea and behaviors of peaceful existence with the built environment, but little has been done to directly connect design with the promotion of global peace. Wangari Muta Maathai was awarded the Nobel Peace prize in 2004 for her work in sustainable environments focused on peace. Her work provides a tangible example for us to follow in pursuing the connection between peace and our decisions and actions as designers. Designers have a particularly powerful opportunity to affect the promotion of peace through the environments they create. This presentation will show research-based design projects created by interior design students that address the creation and promotion of peace through interior design. This final semester capstone project encompasses research, design, and presentation. The premise of the projects shown in this presentation is, “to design an interior space that promotes global peace”. Students identify their own client and the space they will design, but must provide research justification for their choices and decisions. Other requirements for the project include:

- A) the space must be primarily commercial but have a small residential component;
- B) the space must be no smaller than 5000 square feet, but no larger than 10,000 square feet;
- C) the location and exterior character must be addressed and explained as part of the context of the interior; and
- D) the designs must use sustainable materials and practices to the fullest extent possible

Products required for this project include: client identification/description; bubble diagrams and adjacency matrices; conceptual sketches; massing models; presentation boards; renderings; construction documents; specifications; budget calculations; and a project journal describing the process, research basis for design decisions, methods of addressing sustainability; and how the design furthers global peace. Students in the participating program are required to study abroad for a semester during their third year. Their experiences were often counter to the “safety” of their home, and increased their awareness of cultural and global conflict in a very personal way. Promoting peace can be an elusive concept that we often leave to the governmental officials and “experts” we believe are more capable of solving the problem than ourselves. This project provided students with an opportunity to explore and embrace their power as professional designers and to understand the level of influence they could have in this critically important process.

Keywords: Interior design, healing environments, public safety, environmental psychology, sustainability

EDRA’S IMPACT: A WORKING GROUP

Organizers: Schermer, Brian (University of Wisconsin – Milwaukee); Diaz-Moore, Keith (Washington State University); McCoy, Janetta (Washington State University); and Nevarez, Julia (Kean University) [Workshop/Working Group]

The goals of this working group are to: (1) gauge the EDRA’s success in influencing among the academy, professional communities, and among client organizations and their institutions; (2) identify opportunities for EDRA to enhance its influence in these areas; and (3) to consider strategies whereby the membership can use its creativity and energy to further EDRA’s stated mission of using research to create environments that are responsive to human needs. The organizers will report on survey results and interviews with both EDRA members and non-members, and invite audience participation to comment and offer

suggestions. The results will prove useful in shaping EDRA Board policy in the coming years.

**A PRACTICAL THEORY-BASED APPROACH
TO ACTION RESEARCH IN GENERATIONAL
POVERTY SURVIVOR COMMUNITIES**

Thering, Susan
(University of Wisconsin – Madison) [Paper]

Using a practical theory-based approach to developing, documenting, and evaluating action research this paper describes initiatives in communities living with repercussions of events beyond their capacity to address. This paper reflects upon a body of literature from the field of education theory to describe a common “survivor communities” dynamic that transcends these communities, and describes the potential of community-based action research to overcome this dynamic. The paper illustrates the usefulness of this approach by presenting findings from random sample survey data collected before and after a recent action research initiative. This case study focuses on responses to questions about the “possible benefits” of a Brownfield redevelopment project. Interpreted within this heuristic, these findings suggest survivor communities may be defined by their capacity to imagine a better future. It also suggests this capacity may be enhanced by community engagement in action research initiatives that have a visible impact on salient community issues. And more importantly, it suggests that this capacity is measurable through relatively simple questions about aspirations. The simplicity of this approach makes it practical for written or verbal administration, with individuals, small groups, random samples, and panel studies. Thus these findings offer action research professionals a common quantifiable construct that will allow them to document community need, evaluate results, and generate support for action research initiatives with relatively simple research methods.

Keywords: Action research; Survivor Communities; Emancipatory Learning; Quantitative Evaluation Methods

DISASTER

CITIZEN PARTICIPATION IN THE FACE OF CONFLICT: COMMUNITY VOICES ON THE REBUILDING AND PLANNING OF NEIGHBORHOODS IN THE WAKE OF HURRICANES KATRINA AND RITA

THEMATIC
ABSTRACTS

Conflict

Disaster

Organizers/Presenters: Vick, John; Perkins, Douglas; Christens, Brian; Nelson, Michael; Conway, Patricia; and Speer, Paul (Department of Human and Organizational Development, Peabody College, Vanderbilt University, TN) [Symposium]

A major theme of disaster and forced displacement and resettlement research is reconstitution of community, which can be defined both physically and socially. Survivors are displaced from their neighborhoods and community ties and social networks are often strained or broken. Their place attachments and identities are disrupted, causing both emotional and material loss. Conflict within the community often ensues. We will report on qualitative interviews of evacuees of hurricanes Katrina & Rita, which caused the largest displacement of whole communities in U.S. history, and key informants among the prior and emergent community leaders from the represented areas evacuated. We examine what factors determine the form, duration, and success of community rebuilding (both socially and physically) following disasters and other forced relocations. In terms of physically-defined community, the voices of long-term residents of diverse and unique neighborhoods are essential to the reconstruction of their neighborhoods to preserve the character and community that form such an integral part of their identity. We will report on what neighborhood elements citizens want preserved, what they want changed, and who they feel should have control over the rebuilding process. In terms of socially-defined community, we examine loss of community, social disconnect, and neighborhood identity in the wake of disaster. Most of the

social research on disasters in the U.S. has focused on short-term and potential long-term, stress-related individual psychological impacts or regional and national economic impacts, but few have examined the impact of displacement and resettlement on the community per se, which is critical to individuals' and families' ability to cope and adjust and to their decision to return and rebuild. Based largely on the existing international research, communities are often surprisingly adaptive and resilient – new leadership structures emerge, new organizations form to meet new challenges, relationships with external agents (government, relief and other nonprofit organizations) develop and evolve. What predicts and explains the different individual and community-level responses? And how long will it take the community to rebuild not only the housing, but also its social fabric and formal and informal support networks?

Keywords: Participation, Ecological Issues, Neighborhood/Community Planning, Place Attachment/Place Memory, Preservation/Restoration

DEVASTATED LANDSCAPES: EDRA PERCEPTIONS

Organizer: Gumpert, Gary (Urban Communication Foundation, NY) Presenters: Gary Gumpert (Urban Communication Foundation, NY); Drucker, Susan (Hofstra University); Sorensen, Lena (New York University); Sanford, Jon (Atlanta VA Medical Center, GA); Seidel, Andrew (Texas A&M University) and Mazumdar, Sanjoy (University of California, Irvine) [Symposium]

There are those moments of utter devastation that demands world attention and assistance. The past few months have included at least three such circumstances. From the Tsunami to Hurricane Katrina to the earthquake in Kashmir, the responses were fairly predictable – food, medicine, and shelter and the world responded. When communities are wiped out, when homes are destroyed, when infrastructure is gone, what are the priorities of reconstruction?

What can those in the field of environment behavior contribute to understanding the loss, planning for reconstruction and forecasting future needs? This workshop will explore these issues from across the spectrum of interests and expertise found at EDRA.

Keywords: ecological issues (disaster), preservation/restoration, public safety and welfare, place attachment and memory, communication

ECOLOGICAL RESTORATION AFTER WILD-FIRE: HEALING COMMUNITY SPIRIT

Ryan, Robert L. and Hamin, Elisabeth (University of Massachusetts, Amherst) [Paper]

Natural disasters, such as wildfires, have significant and often tragic impacts on human settlements. The question of how to address post-fire mitigation can also be just as controversial and traumatic for a community affected by a wildfire. However, sometimes the very act of restoring fire devastated forests can provide healing for a community. The goal of this USDA Forest Service funded study was to understand stakeholders' perceptions of forest restoration after wildfire. The study looked at the Cerro Grande Fire in Los Alamos, New Mexico, the largest in the state's history which burned over 47,000 acres and destroyed 231 structures. The wildfire was especially bitter for local residents since it began as a prescribed fire set by the National Park Service at Bandelier National Monument that escaped containment and caused the whole-sale evacuation of the entire community of 11,000 people and threatened the nearby national nuclear lab. One unique aspect of the post-fire rehabilitation in Los Alamos was a grass-roots organization that mobilized local residents and school children to plant thousands of acres of trees and other vegetation on the burned areas surrounding the community. In order to understand the impact of forest rehabilitation on the community, the study involved structured interviews with 15 key leaders from local government, environmental groups, business and Native American pueblos, as well as two focus groups with local residents and

volunteers. Participants were asked their perceptions of re-vegetation treatments on the nearby forest, as well as attitudes about the role of the Forest Service in the post-fire rehabilitation. One important finding of this study is that the volunteer tree-planting efforts both aided the forest as well as helped the community heal from the trauma of the fire. Local residents were eager to participate actively in restoring the nearby forest, which was a very beloved natural backdrop for the community. The fire also created an opportunity to build networks for collaboration, both with residents and with other agencies. The study points to the important role of government agencies, such as the Forest Service, in facilitating or assisting in these grass-roots volunteer efforts.

Keywords: ecological issues (disasters); ecosystem management; outdoor environments; qualitative research; landscape aesthetics/meaning

RECONSTRUCTION AFTER THE 2004 TSUNAMI: ECOLOGICAL AND CULTURAL CONSIDERATIONS FROM CASE STUDIES

Chang, Hye-jung; Hargrove, Ryan; Long, Yi-xiang (North Carolina State University) [Paper]

Design professionals have not often been consulted regarding devastation and rebuilding following natural disasters. Most solutions and techniques of natural disaster-related recovery emphasize infrastructure engineering and food provision. While recovery efforts and basic survival demand that food delivery and movement be facilitated in such areas, issues designers concern themselves with are seldom considered. Designers' focus is on the integration of ecological and cultural concerns in planning for disaster recovery. Indeed, after events such as the Southeast Asian tsunami of 2004, societies must start over with few material objects, but with an extensive cultural consciousness. This paper addresses the role that designers can play in such a situation. Suggestions are made for how designers along with other professionals can facilitate a series of best practices

THEMATIC
ABSTRACTS

Conflict

Disaster

in disaster recovery. Overviews of large scale disasters from three countries are used to illustrate how cultural and ecological considerations are the two elements most needed in disaster planning, both pre- and post-event. Suggestions are made regarding how these elements may be best incorporated into future ecologically-based recovery efforts. Evaluation of design precedents used to renovate the natural and built environment presents a positive and necessary framework for recovery.

Keywords: natural disaster, cultural, ecological, case study, Korea, China, flood, hurricane, tsunami, reconstruction

**TERRORISM, NATURAL DISASTERS
AND CONFLICTS OVER SPACE: HOW
CAN EDRA ATTENDEES CONTRIBUTE
TO UNDERSTANDING THESE
CONTEMPORARY THREATS?**

*Organizers: Rivlin, Leanne; Chapin, David and
Steinmayer, Karen (City University of New York)
[Workshop/Working Group]*

The world has been suffering from threats to peaceful existence for a very long time but the past few years have presented a string of catastrophes that require attention. After presenting a very brief overview of issues, the attendees will focus on a few examples in need of work by our fields. We will make efforts to address a research and action agenda appropriate for environmental professionals dealing with these concerns. We will review relevant existing theory and research in order to clarify the components of the problems that could benefit from our discussion. Our goal would be the preparation of a work agenda in which attendees could participate to offer directions for change. As examples, two major areas loom forward for consideration, (1) the continuing, multiple conflicts in the Middle East, and (2) the so-called “natural disasters” in the gulf areas of the United States. Different in their origins, cultural meanings, personal impacts and outcomes, the issues of stress, personal space,

territoriality, place identity and place attachment are common to many of the places involved. This session may add other issues to this list and suggest directions for future steps by our members.

Keywords: stress, place attachment/place memory, health/ healing environments, culture, temporary settlement

**TERRITORY IN TEMPORARY SHELTERS:
MEDIA-DOCUMENTED SPACE CLAIM-
ING FOLLOWING HURRICANE KATRINA**

*Wallack, Catherine and Webb, Jennifer (University
of Arkansas) [Poster]*

Territories include objects, places and larger regions (Altman & Chemer, 1980) that individuals and groups identify as being owned or controlled. People mark territories as a way of communicating to others that the space is ‘owned’ (Altman, 1975). The recent Hurricane Katrina disaster allows human-environment behaviors and, in particular, territoriality through space making and space claiming, to be examined in new contexts. The role of privacy and territory/personal space mechanisms are significant when individuals, families, and entire communities are uprooted and forced into shelters and temporary housing. These provisional accommodations do not fulfill privacy requirements, particularly by American standards. Territory serves two primary roles; the first is that of personal identity and the second is the regulation of social processes such as mediating interaction between individuals and groups (Edney, 19076). Territories regulate social behaviors and reduce confusion. People have a better understanding of what may or may not be appropriate in a particular setting. Additionally, environments limit particular behaviors in the space can be carried out. Territories that are clearly defined can reduce aggression by reducing intrusions through commonly recognized boundaries. Importantly, territories are an expression of hierarchy and status. Territories can contain necessary resources for survival, can have an ideal location, and is often a

reflection of investment on the part of the owner. In the context of temporary shelters, hierarchical and status attributes associated with territories have been removed and the displaced persons must reestablish these attributes in a new and inadequate setting. Photographic images, news reports, and narrative accounts will be used as the foundation for this presentation. Images of the Astrodome in Houston and the Superdome in New Orleans, For example, suggest a predetermined plan for the arrangement of cots and other sleeping surface. This arrangement prevented initial space claiming other than the temporary marking of public space with possessions. In this situation, the rarity of possessions available for claiming and the value of those possessions underline the tension and conflict reported in these settings. Psychological security and adaptation is constructed from the personalization of territories (Lang, 1987). An additional stressor is the heterogeneity of the population. Although many of the residents came from the same geographical location, age, cultural, and community affiliations created a highly diverse population and diverse needs. The density and diversity combined with the activity range (mourning, resting, childcare, etc.) further compounds the conflict.

Keywords: stress, privacy, crowding/density, ecological issues, temporary settlement

**TO BUILD OR BURN: CONFLICTS OF
DEVELOPMENT AND WILDFIRE**

*Brzuszek, Robert; Walker, Jason; and Schauwecker,
Tim (Mississippi State) [Paper]*

The wildland-urban interface is defined as an area where various structures, most notably private homes, and other human developments meet or are intermingled with forest and other vegetative fuel types (in terms of wildfires). The heightened risk of wildfire is a growing concern regarding development in rural areas. This paper explores the challenges of the wildland-urban interface and identifies opportunities/constraints for the design professions in the design,

planning, and management of development. This session will be organized to present the context of fire history; a case study of a fire-damaged community; and current state and local policies, codes, and ordinances regarding building in fire-prone regions.

Fire history precedes human history, but the human influence on fire’s history is significant. Human’s use of fire played an integral role in broadening fire-adapted ecosystems. With this propensity to burn, a fire regime that met our ancestor’s needs was established. The fire-prone landscape that we see today can be attributed to our removal of anthropogenic fire and the subsequent change in the fire regime.

The 1991 East Bay Hills Fire in the Oakland-Berkeley area of California captured the attention of a national audience, partially due to the sheer magnitude and tremendous damage to the community. This event also created a much broader national concern for wildfire in the urban interface, and became a pivotal example that led to the heightened federal and state efforts that we see today. Post-analysis of the fire concluded that design/management decisions could have significantly reduced loss.

Over the past decade, a prolific increase in the number of ordinances in cities, subdivisions, and counties concerning wildland-urban interface development have occurred. These ordinances directly impact all development, including the scope of work for architects and landscape architects. Each community has differences in codes and regulations according to fire hazard severity, but zoning laws apply to various aspects of land use. States with local zoning and subdivision regulations regarding wildland-urban planning include Florida, Montana, Washington, Utah, Arizona, New Mexico and Idaho. In certain communities, development plans for subdivisions are regulated, subject to review, and given approval by the local fire departments.

Developing in the wildland-urban interface must address a broad range of factors that extend beyond a single discipline’s expertise. Therefore, in order to successfully integrate development into wildland-urban interface areas, a multi-disciplinary approach is essential. The design professions routinely collaborate with one another, however, the issues posed

by the wildland-urban interface requires the design professions to broaden their collaborations to include: ecologists, biologists, federal agencies, state and local governments, foresters, fire departments, insurance companies, developers, stakeholders, and the public.

Wildland-urban interface development poses significant challenges. The design professions can contribute in the building of these areas to ensure the health, safety, welfare, and sustainability of the land and its inhabitants. Whether it is developing alternative strategies for areas of high risk at a regional scale or designing defensible space at the site scale, we must recognize and address the challenges presented.

Keywords: Disasters, wildfires, sustainability

MEMORIALS

MANIFESTING CONFLICT – MEMORIALS, COUNTER-MEMORIALS AND PUBLIC SPACE

Langhorst, Joern (University of Colorado at Denver)
[Paper]

Creating places of commemoration is intrinsically linked to human existence. Recently, issues of memory, commemoration and co modification have taken on a considerable presence in the public, triggered by the discussions around the memorial at Ground Zero, the Flight 93 Memorial competition, the process around the design of the Oklahoma City bombing memorial, the almost 20-year long process surrounding the Memorial for the Murdered Jews in Europe in Berlin. Investigating these and a number of other memorials, this paper will explore questions concerning the design, creation and reception of memorials in their cultural, social, artistic and spatial context. The memorials investigated engage the phenomena and idea of ‘conflict’ in two ways: they memorialize a traumatic event that is the direct results of a conflict and in the process of their conceptualization have to engage and

negotiate conflicting interpretations and readings of that event. The built, permanent memorial, employing conventional strategies of commemoration literally and spatially inscribes a particular interpretation into the (mostly) public space it occupies – with a high degree of permanence and immutability. This positions conventional memorials distinctively at odds with the inherent changeability of individual and collective memory, affected by an array of states and stimuli, such as the stages of grief and changes in cultural and political context. The interpretations of conflict manifested in such permanent memorials are mostly representative of positions of power during their inception – and allow analyzing both the originating conflict and the discourse on acceptable readings of that underlying conflict at later points in time.

James Young’s assertion that contemporary (Holocaust) memorials “aim not to console but to provoke, not to remain fixed but to change, not to be everlasting but to disappear, not to be ignored by passers-by but to demand interaction, not to remain pristine but to invite their own violation and not to accept graciously the burden of memory but to drop it at the subject’s feet” (Huyssen 1994) opens the possibility to understand commemoration as a continuous process. The emerging idea of a counter-memorial allows engaging the process and space of commemoration as a location of ongoing conflicts. In that sense and ideal memorial would provide a location and forum to enter a discourse, a process that would engage and activate public space in meaningful ways. Conflicts surrounding issues of finding an appropriate spatial and aesthetic expression, the ‘ownership’ of trauma and grief, the co modification of memory, the conflict between “the sacred and the profane”, between commemoration and ‘useful’ public space, between spontaneity, power and planning are intrinsic to the examples analyzed and resolved in different ways which suggest different ways to reflect the ephemeral conditions of site and memory while maintaining its importance in public space.

Keywords: aesthetics/meaning, culture, social issues, urban, theory/conceptualization

TERRORIZING COMMEMORATION: DESIGN WITHOUT GUILT AT THE WORLD TRADE CENTER MEMORIAL

Watkins, Nicholas (University of Illinois at Urbana – Champaign) [Paper]

Will the World Trade Center Memorial’s design favor an account of 9/11 independent of the need to mourn the event? This question will be explored by examining competing narratives of guilt and sacrifice vying for expression in the Memorial’s design. Theory (derived from hermeneutics, object relations theory, and place attachment theory) hypothesizing the psychology behind commemorative environments will be applied. In the process, the design of the Memorial will be examined and evaluated as a medium for mourning. Because mourning involves changes in our selves, the dynamic between memory and identity is the focus of this literature review on the Memorial. When we remember, we determine our and others’ identities as subjects and objects: I, me, and you. When we commemorate, we “remember together” in the presence of others within a shared identity expressed as “we.” Common symbols allow individuals to consolidate private memories of a key event with their community’s identity and history. To do so, common symbols have physical presence as common objects. Common objects can transcend individual perceptions by allowing community members to touch and see as facts in the world shared, recognized meanings. Common objects communicate morals and sacred ideals with words, statuary, landmarks, and architecture. In turn, common objects mediate a public, democratic process during which individuals debate interpretations of an event. Maintenance of common objects requires repeated ritual. Consequently, the “living” remembers and imagines the history of their community’s identity by constructing and revising narratives and traditions in accordance with contemporary events. As common objects, memorials reflect sentiments specific to a society’s commemorative practices. Ideally, memorials communicate the benefits of worthwhile sacrifices. They represent the

exchange of a burden wherein the living recognizes the losses of individuals who successfully gave toward the common good. Therefore, losses are not in vain.

9/11 challenges individuals to find a reason for losses in terms of socially acceptable sacrifices. Open acknowledgement of loss and guilt motivates exchanges necessary for sacrifice to take its course. Losses caused by terror create anxiety and guilt accompanied by mourning. If we balance both positive and negative emotions by confronting our relationship with a loss, then we can master a loss. However, if we deny a loss, we avoid anxiety, mourning, responsibility, and guilt. For communities, avoidance and shame result in memorials whose designs support narratives hiding shame and questions of sacrifice. Such memorials enforce socially sanctioned narratives at the expense of an emerging consensus. In turn, these memorials reflect a false recognition and continuity between the living and the losses commemorated. Also, they deflect a responsibility to mourn by reinforcing shared identities of victimhood encouraging blame and revenge. Far from catalyzing mourning, these memorials isolate private memories of the event from public expression. Denial of guilt reflects a society’s ability to mourn using memorial designs responsive or unresponsive to a tragedy. Indeed, avoidance of guilt terrorizes commemoration as much as terrorism does.

Keywords: Terrorism, 9/11, memorials, World Trade Center

HOMELESSNESS & THE BUILT ENVIRONMENT

HOMELESS INTERACTIONS WITH THE BUILT ENVIRONMENT: A SPATIAL PATTERN LANGUAGE OF ABANDONED HOUSING

THEMATIC ABSTRACTS

Conflict

Homelessness & the Built Environment

Kaplan, Abram (Denison University, OH) [Paper]

One of the agonizing conflicts of our modern social fabric is the disjunction between people with regular shelter and those without. The homeless, while often characterized as a uniform population, encompass a spectrum of living conditions and challenges in the realm of health, finances, social expectations, behavioral patterns, and material necessities. Thanks to the on-going process of enumerating the homeless in Newark, Ohio, we have begun to understand better the structural and spatial factors which inform the behaviors and decisions of this population. This study expands on the basic annual counts with the help of two particular tools: Christopher Alexander's "pattern language" and the analytical power of geographic information systems (GIS). Newark is a largely blue-collar city in central Ohio, with a population of just under 50,000, occupying about 20 square miles. The combined population of unsheltered and sheltered homeless, along with marginally-housed individuals, numbers in the range of 1,000–2,000 people, varying widely by season. De-industrialization, depopulation of the urban core, and reduction of resources available to low-income individuals has impacted Newark powerfully. More particularly, with the construction of a bypass highway, starting in the mid-1960s, parts of the city were bifurcated, and residential areas have been blighted by the transportation corridor. This exacerbated the homeless situation in the community, and a significant number of residents have required temporary shelter of one sort or another in the aftermath of these infrastructural changes. The pattern language

perspective offers a unique lens onto the modes of people's interaction with their built environment. In particular, Alexander has identified numerous ways in which indigenous design models more closely on sustainable modes of existence than does the expert-imposed architectural form. We were intrigued to observe that Newark homeless people seem to have their own pattern language relating to the desirability of abandoned buildings, and have taken on the current research project to develop a more formalized schema for understanding this phenomenon. For example, houses with little foliage – and thus greater observability from the street – are far less often inhabited than those which are more hidden. Buildings with brand new plywood on windows and doors are much less likely to be occupied for temporary shelter than are those with weathered sheathing. Numerous themes along these lines have emerged in our observations of, and conversations with, the homeless people of this community. By using the analytical capabilities of GIS, we will be able to derive a spatial language of these patterns, and demonstrate the adaptive qualities of homeless behavior and movement around this urban area. We anticipate that this will evolve into a useful tool for housing advocates and city officials seeking to provide better services for the homeless and to result in more thoughtful allocation of resources to fit the preferences and needs of the people who require such assistance.

Keywords: spatial behavior, homeless, urban design, pattern language, GIS (Geographic Information Systems)

*URBAN DESIGN PROJECT FOR
THE LAFAYETTE NEIGHBORHOOD,
NASHVILLE, TN: ADDRESSING THE
ISSUES OF HOMELESSNESS*

Organizer: Gaston, Gary

(Nashville Civic Design Center, TN)

Presenters: Gaston, Gary (Nashville Civic Design Center, TN); Davis, T.K. (Nashville Civic Design Center, TN); Vick, John (Vanderbilt University); Christens, Brian (Vanderbilt University, TN); Morgan, Randy (Metropolitan Nashville-Davidson City Planning Department, TN); and Hayes, Robert (Auburn University, AL) [Symposium]

This design project was completed at the request of the metropolitan housing agency in Nashville, TN. The Lafayette neighborhood, a triangular area immediately south of downtown (bounded by railroad tracks and major roads) recently received a Community Development Block Grant for physical improvements. Although the area has few permanent residents, it is the site for several agencies that work as the major hubs of service provision for the homeless residents of the city. The urban design interests of these service providers, the interests of the homeless residents themselves, and the interests of the business owners in the neighborhood were expected to widely diverge. Three meetings were held; one with each of these groups. Even within the groups, there was a diversity of opinion on issues of design in the neighborhood. The fourth meeting brought these groups face to face to discuss urban design plans for the neighborhood. This design project was shaped through the discussion that took place. The project functions as an example of the role of conflict in design and research.

Keywords: urban development, social issues/ social justice, crime/fear of crime, participation, case study

CRIME & THE BUILT ENVIRONMENT

CONFLICT BETWEEN SPACE AND CRIME: EXPLORING THE RELATIONSHIP BETWEEN SPATIAL CONFIGURATION AND CRIME LOCATION

THEMATIC ABSTRACTS

Conflict

*Crime &
the Built
Environment*

Baran, Perver (North Carolina State University),
Smith, William R. (North Carolina State Univer-
sity), and Toker, Umut (California Polytechnic
State University SLO) [Paper]

Research from different disciplines has explored the crime-space relationship often with controversial results. In the area of urban design, the most influential empirical study that examined the crime-environment connection was conducted by Oscar Newman (Newman, 1972; Newman 1976). Newman elaborated the idea of defensible space and its most important elements of territoriality and natural surveillance. Later, the concept of defensible space provided the theoretical grounding for the development of Crime Prevention through Environmental Design (CPTED). Based on defensible space theory the surveillance of the space onto which the building entrances open makes the space safe. More recently, a considerable body of research has examined the relationship between the occurrence of criminal events and spatial configuration as measured by space syntax methodology (Hillier, 1998; Shu, 1999). Contrary to the theory of defensible space, most of the space syntax research has shown that crime, in particular property crime, tend to cluster in segregated areas, particularly in those "unconstituted enclosed clusters which Newman considered to be the key to increase local surveillance and hence to exclude causal intrusion by non-residents" (Shu, 1999). These research findings also confirm Jacobs' (1961) view that the circulation of people and appreciation of public spaces are crucial elements to the urban vitality and that natural surveillance is a good deter-

rent to criminal activity. However, not all space syntax research has supported these findings (Reis, Portella, Bennett, and Lay, 2003). The controversial results point to the fact that the relationship between space and crime occurrence is not a simple one. This paper reports an ongoing study that examines the relationship between spatial configuration as measured by space syntax methodology and the actual crime locations in town of Cary, NC. Data for this research include crime event locations obtained from town police records, census data, street network data, and parcel based land use data obtained from the tax assessment database. In order to explore the persistency of the relationship between spatial configuration and crime event locations, we will analyze 1994 and 2002 data separately. We have already conducted separate configurational analysis for these two years and have obtained spatial configuration parameters, which include global integration, local integration, and street connectivity. Second, we will spatially locate the crime event locations using the geographic information systems (GIS) technology. Since Cary is a relatively “safe” place, we assume that a single twelve-month period will not yield enough crime data for analysis. To overcome this problem, for each time period, 1994 and 2002, we will include a three-year crime data, 1993–1995 and 2001–2003, respectively. Finally, we will perform spatial/statistical analyses for the two time periods separately in order to understand the role of spatial configuration in crime event locations. This analysis will also point to changes in space-crime relationships.

Keywords: crime, urban, space syntax, GIS (geographic information systems)

EXPLORING THE FEAR OR ATTRACTIVE FEATURES IN A PARK

Saka, Iori and Hanyu, Kazunori (Nihon University, Japan) [Poster]

Parks have many functions such as refreshing mind and body, providing recreational facilities and spaces for children to play. A park can be thought of as a

place of rest, but there are often problems in parks. People often feel fear in park settings because crime in parks has become both more felonious and diversified in recent years in Japan. Thus, there is high fear that one could be a victim of crime in a park. This research identifies spatial features in a park useful in crime prevention. Park users identified places where they felt that they may encounter crime. Research has reported that there are spatial features which can be connected with fear of crime. However, these features may conflict with park functionality. For example, too much vegetation worsens the prospect of crime. At the same time, large amounts of vegetation are valuable for people who live in a city. Therefore investigating parks from both of the crime prevention side and functional side is necessary. This study revealed attractive features and features that promote fear, and differences or commonalities between them. We focused on inhabitants of a housing development in the city suburbs. We asked participants to plot points that generate fear or attraction and to describe reasons why they made their selection. Furthermore, we asked them about their frequency of visiting selected places. Results revealed differences and common points between features which promote fear and attractive features. The results suggest possibilities for park design which are attractive while also enhancing their crime prevention potential.

Keywords: park, landscape architecture, crime/fear of crime, public safety, neighborhood planning

REMAKING MINNIE STREET: THE IMPACTS OF URBAN REVITALIZATION ON PEDESTRIAN AND CRIME SAFETY

Powe, Mike and Day, Kristen (University of California, Irvine, CA) [Paper]

For years, Minnie Street was known as one of the most dangerous neighborhoods in the City of Santa Ana, California. In the local imagination, Minnie Street conjured associations with gangs and drugs, and residents reported that gunshots were a common

sound after dark. Buildings on the street showed decades of neglect and disrepair. Minnie Street was also a dangerous place for children, with few secure places to play and many unsafe traffic conditions. Beginning in 1998, the City of Santa Ana undertook a multi-million dollar renovation of Minnie Street, extensively renovating apartment interiors, exteriors and courtyards as well as making major improvements to the street itself. Today, a prominent sign displaying the neighborhood’s new name, Cornerstone Village, greets those entering Minnie Street. Traffic, now one-way, meanders down the street, between widened sidewalks, and diagonal on-street parking. This study examines whether the renovation of Minnie Street was associated with improved perceptions of pedestrian safety and safety from crime as well as improvements in actual safety. The research involves several forms of data collection. In-person surveys with Minnie Street residents were conducted by promoters before revitalization in 2000 (n = 163) and Santa Ana College students after in 2005 (n = 121). Residents were questioned about their perceptions of pedestrian safety as well as perceptions of safety from crime with focus on the safety of children. They were also questioned about their perceptions of the street and their housing. Observations of pedestrian and vehicular traffic were conducted on four occasions before and four occasions after revitalization, matched for time and day of the week. Traffic speeds were collected with a radar gun, and traffic counts were conducted. Pedestrian behavior was observed over fifteen-minute periods on four occasions before and after the renovation. Finally, with the help of the Santa Ana Police Department, crime data was gathered for the Minnie Street project area and for the city. Findings show an increase in perceived safety of pedestrians and children associated with renovation, but survey results demonstrate less positive change in perceptions of safety from crime as residents feel they are as safe or less safe (particularly with regard to gang activity). Findings also demonstrate that residents feel more pride in their neighborhood and have more positive perceptions of the neighborhood and their dwellings. Researcher observations revealed decreases in vehicular speeds and traffic volume as well as fewer pedestrians in

areas near the buildings after renovation. Crime data shows a reduction in actual crime (particularly violent crime) associated with revitalization, but these results are somewhat inconclusive. While the revitalization of Minnie Street was associated with improved living conditions and increased neighborhood safety, the results with regard to fear of crime and actual crime are less positive. This paper will discuss the implications of the Minnie Street revitalization as a model for future revitalization efforts.

Keywords: urban revitalization, crime/fear of crime, low income, public safety, neighborhood planning

ROUNDTABLE ON CRIME AND THE BUILT ENVIRONMENT: ENVIRONMENTAL CRIMINOLOGY: NETWORK INCEPTION

Organizers/Presenters: Hecht, Peter (Temple University, PA); Nasar, Jack (Ohio State University); and Wener, Richard (Polytechnic University of New York) [Workshop/Working Group]

Beyond existing approaches to crime and design there is a need to examine illicit and inappropriate behavior from a systemic point of view. This approach will look at ways and means combining environmental, organizational, and community research into a comprehensive view of behavior, licit and illicit as situated in a place, time, and social structure. Similar to a time-space analysis of pedestrian behavior, such an approach takes behavior along a continuum without any necessary breaks between that which is defined as licit and that which is identified as criminal. Through this set of lens researchers can be set free to examine the physical setting as an element in defining as well as supporting/inhibiting types of behavior. This is a take-off from the work of Goffman (1971, 1974) as well as that of Taylor (1989, 1996). The purpose of the working group is generative. The session will provide a setting in which to explore themes linked to environmental incivilities, temporal and structural facets of behavior that may be related to crime, vandalism, pranks, letting steam off, etc. Issues

of situation awareness, varying vulnerability, tipping, along with more recognized topics in the area are welcome and embraced within this session. Our intent is to generate enough heat and interest to identify initiatives and topics for the network to coalesce around. All fields and perspectives are invited to participate in what should be an invigorating discussion. The organizers will very briefly present individual perspectives from their own work and research as a way of bootstrapping the session.

Keywords: crime/fear of crime, public safety, neighborhood planning

***SPATIAL CONFIGURATION AND ACTUAL
CRIME LOCATIONS IN A UNIVERSITY
CAMPUS SETTING***

Long, Yixiang and Baran, Perver (North Carolina State University) [Paper]

Crime has long been thought to be intimately associated with the physical environment in which it occurs. Based on this premise, a body of research in this area has focused on exploring the relationship between physical environment and unsafe perception or fear of crime in urban environments (Wilson & Kelling, 1982; Lewis & Salem 1985; Taylor & Hale, 1986; Taylor, 1987; Perkins et al. 1992). Most of these studies have explored the association between physical incivilities, poor lighting, and overgrown vegetation and fear of crime. Another body of research has focused on exploring the relationship between physical environment and actual crime location (Beavon, Brantingham and Brantingham, 1994; Loukoaitou-Sideris, 1999). These studies have pointed to the importance of territoriality, accessibility, and physical incivilities in occurrence of crime. More recently, a considerable body of research has examined the relationship between the occurrence of criminal events and spatial configuration as measured by space syntax methodology (Hillier, 1998; Shu, 1999, Hillier, 2005). Research in this area has shown that crime tend to cluster in segregated areas. However not all space syntax research has supported

these findings (Reis, Portella, Bennett, and Lay, 2003). The controversial results point to the fact that the relationship between space and crime occurrence is a not a simple one. In addition, so far, most of the space syntax research has focused on residential neighborhoods, housing estates, and communities. This paper will report an ongoing study that explores the relationship between spatial configuration and the location of outdoor crime events in a campus environment, North Carolina State University campus. In addition to spatial configuration as measured by space syntax methodology, the study examines few additional environmental characteristics, such as lighting and vegetation, which have shown to play role in actual crime location. Data for this research –crime event locations, spatial configuration parameters, trees, and lights – have been integrated in a geographic information system (GIS) database, which allows for various statistical and spatial analyses. The initial findings suggest that crime events tend to cluster in integrated areas of the campus.

Keywords: Crime, campus, space syntax, GIS (geographic information system)

***SPATIAL LAYOUT AND VULNERABILITY
OF BURGLARY AND CAR CRIME: CASE
STUDIES FROM UK AND TAIWAN***

Shu, Chih-Feng (Tunghai University, Tawain) [Paper]

Crime prevention has become one of the main issues in city management and development in the past few years. Western countries have tried to amend their political strategies to focus on up-lifting economic growth and cutting down the unemployment rate. They have also tried to increase and to strengthen functions of patrol and detecting equipments (such as CCTV), and have also toughened up laws in the hope of easing or even cutting crime down significantly. The fundamental ideology of "territoriality and defensible space" proposed by Oscar Newman has been adopted by the British Home Office in order to estab-

lish the "Secured by Design" scheme for local planners and architects' references without clear evidence for its effectiveness. The controversial findings of my Ph.D. research on space and crime in Britain seem to suggest that the efficiency of Newman's theory could be over-estimated and should be treated with caution (Shu 2000). This new research project is an extension of my PhD research and studies two cities in Taiwan. It focuses on the correlations between crime rates of burglary (or car crime) and the spatial characteristics of the environmental situations of these crimes. For detailed analysis of the spatial configuration, the "space syntax" method has been deployed. Moreover, social factors are controlled and multivariate analysis is used in order to clarify space and crime issues. The UK studies will be compared to the case studies in Taiwan. The contribution of this research will not be confined to Taiwan but will be applicable in other contexts as well.

Keywords: crime, crime prevention, urban design, space syntax

***THE ROLE OF SPACE SYNTAX IN
EXPLAINING THE GEOGRAPHICAL
PATTERNS OF CRIME IN RESIDENTIAL
NEIGHBORHOODS***

Nubani, Linda (American University in Dubai, UAE) and Wineman, Jean (University of Michigan) [Paper]

Criminologists, planners, and architects are still unable to predict criminals' preferences for committing an offense in one location over another. Criminologists associate crime with sociodemographic factors such as income, racial composition, youth concentration and level of education. Architects and planners on the other hand, relate crime to environmental design factors such as lighting, target hardening, or orientation of entrances, just to name a few. Recently, some work using space syntax has demonstrated statistical relationships between properties of spatial layouts and the occurrence of certain types of crimes.

Space syntax consists of theories and methodologies used to examine the relationships between space and its social use. This research applies space syntax techniques to examine the geographical patterns of four types of offense behavior: breaking and entering, larceny, vehicle theft and robbery. Crime data, at an address level with the exact date and time, is based on a 12-month period for the city of Ypsilanti, Michigan (USA). After mapping crime locations using GIS (geographic information system) and assigning sociodemographic variables to block groups in Ypsilanti, an axial map was prepared using *Spatialist*, a program developed by Peponis and Wineman. The axial map comprised of 547 straight, long lines of sights that have been drawn manually to cover all the spaces in Ypsilanti. The *Spatialist* automatically assigns each line with values of connectivity and integration. A negative binomial distribution was used to examine relationships between spatial and sociodemographic measures and four types of crimes in thirty block groups in Ypsilanti. The research demonstrated that two space syntax measures, local integration and connectivity, were highly associated with different crime types through interactions with levels of home ownership. Other factors such as median income, youth concentration, density, racial composition and global integration did not feature in the predictive model. Results of the study suggest that space syntax can be a valuable tool in explaining the geographical distribution of crime in residential neighborhoods.

Keywords: crime, crime prevention, urban design, space syntax

CULTURE & ENVIRONMENT

BETWEEN VEILS AND REVELATIONS:
THE INTERIOR LIFE OF (WOMEN IN)
THE MODERN MIDDLE EAST

El Kharbawy, A. Sameh (University of North Caro-
lina at Greensboro) [Paper]

THEMATIC
ABSTRACTS

Culture &
Environment

Since September 11, 2001 the question of Islam has been thrust into world consciousness with amazing insistence. Media propaganda and official discourse in the U.S. have convinced far too many that large swaths of the Muslim world are occupied by underdeveloped, incompetent, and doomed peoples whose cultures and civilizations are deeply opposed to the modern world and to ‘our’ values: namely democracy, freedom and human rights. Added to this is the appallingly abstract proposition that a “clash of civilizations” is inevitable. Arabs and Muslims around the world are also reassessing their culture and religious practices; rituals that were previously followed blindly are now being questioned and understood for their spiritual significance and purpose. This paper consists of two complementary and loosely related parts. The first section, which I will entitle “Islam and Modernity”, consists of a few observations and a hypothesis about the interrelation between modernity and Islam. This hypothesis will serve as a theoretical framework for the second part which tells the story of a small community of Muslim women in Matariyah, a lower-middle class neighborhood in the Eastern part of Cairo, Egypt, and their means of creating modern homes and workplaces while challenging the paternal traditions of local culture. My primary objective is to draw from the Matariyah experience lessons for understanding the relationship between (Western) modernity and a rapidly developing Middle East, and for sustaining human creativity in the context of the design and development processes. A secondary objective is to draw scholarly and

professional attention to the complex (yet habitually abstracted and simplified) human reality of women in Egypt, and their contributions to a more modern Middle East.

Keywords: theory/criticism, design, culture, cultural politics, modernity

CONFLICT AND THE SHAPING OF THE
NATIONAL MUSEUM OF THE AMERICAN
INDIAN (NMAI)

Organizer: Paxson, Lynn (Iowa State Univer-
sity, Ames) Presenters: Paxson, Lynn (Iowa State
University, Ames), Juhasz, Joseph (University of
Colorado, Boulder). Discussants: Martinez, Rubén
O. (University of Texas, San Antonio) [Symposium]

On September 21, 2004 after more than a decade of planning, preparation and design, marked along the way with a number of very public conflicts, the Smithsonian NMAI (National Museum of the American Indian) opened its doors. While the opening was perhaps not as marked by conflict as it might have been – it did generate a certain amount of controversy, some of which is ongoing. The story of the events and process(s) that led to this point are interesting and instructive. There was controversy about changing the location of the collection, about transferring the ownership and control, and controversy over the design and designers of the museum. Although there was some controversy over the building design itself, there has been greater controversy over the content of the museum – the displays, the choice of objects and the interpretation provided. Design professionals and environmental social scientists understand the human modified environment as a material production of cultures. As a result, we also support the idea of spaces as

communicative. The contextually defined relations between objects, places, and people communicate the values, decisions, and choices made throughout a broadly defined process of placemaking. Places have meanings, they tell stories. The new Smithsonian National Museum of the American Indian located on the Mall in Washington D.C. sought to be an example of creating a very different and unique sense or spirit of place (or recreating an older or former sense of place) in this heavily colonized and transformed place. Sensitivity is required to produce successful designs for native communities that meet the challenge of interpreting and reflecting appropriate cultural qualities and values of place into these new architectural expressions. The NMAI project has been approached holistically considering carefully the issues of the site through to the objects in the exhibits. The intent was to make a place, that although part of the Mall and meeting all the Mall restrictions/guidelines, was recognizably a different kind of place, a different set of experiences from the moment you stepped onto the grounds – to make a native place. Lynn Paxson and Joe Juhasz will discuss the controversy over the interpretation and presentation in the recently opened Smithsonian NMAI. These controversies swirl around the differences in worldviews (epistemologies) between Native Americans or First Peoples and Mainstream or Non-Indigenous people as well as around the diversity among American Indians or First Nations groups. They reflect traditions, cultures and identities that are always evolving, that refuse to be frozen in an anthropological past, and that have maintained their identities, colonized peoples who may struggle to control assimilation and acculturation in an increasingly globalized world. These controversies raise at some level the question of who will tell the ‘stories’ in this museum as well as whose ‘stories’ will be told. The two presenters will take rather different positions on these controversial issues and aspects allowing the ‘conflict’ of their dialogue to help illustrate the value of ‘conflict’ in revealing diverse interpretations. Ruben Martinez will act as a discussant reflecting on their dialogue to pose evocative issues and provide additional points of

discussion. The session will examine the power relationships inherent in choosing narratives and methods of interpretation. Who gets to decide whose story is told? Can the narrating of stories be negotiated by multiple factions and if so, how? What methods have been used to express multiple stories in a single space and which of these have been most successful? This symposium will examine, these and other questions, and encourage audience participation and discussion in looking for understanding. **Keywords:** art, urban design/scale, architecture, landscape architecture, case study, qualitative, culture, communication

THEMATIC
ABSTRACTS

Culture &
Environment

DESIGN, MEANINGS AND SYMBOLISM
OF THE AMERICAN MOSQUE

Amor, Cherif (Texas Tech University) [Paper]

While it is very well documented that Islam was in practice in the United States before the American civil war (Kahera, 1999), there is a substantial lack of studies pertaining to American Muslim physical environments, specifically the mosque environment from an environmental behavioral perspective. Several reasons justify this lack. First, the mosque is a recent architectural artifact within the American urban fabric. Art historians believe that the establishment of the first mosque in America was in 1926 in Highland Park (a city within the boundaries of Detroit) where the first Ford Motor Co. plant was located. The second reason behind this lack is that early Muslim immigrants, unlike recent immigrants, perceived America as a transitory economic station in their lives. This transient attitude yielded a passive lifestyle that limited Muslims architectural contribution to the host culture. The third reason is that art historians prefer to study traditional models in the Muslim world that virtually produced an abundant body of literature regarding the architecture of the mosque in the Muslim world. Likewise, the fourth reason revolves around the fact that the majority of mosques (55%) were existing

structures (Council of American-Islamic Relations, 2001) that architecturally and aesthetically did not constitute an attraction for the art, architecture, and design communities. The scarce literature that started to emerge decades after the 1963 ratification of the immigration laws revolved around the art and architectural contexts (built environment) while the behavioral studies remained almost negligible. Kahera, 2002; Petruccioli and Pirani, 2002; Steele and Serageldin, 1996; Frishman and Khan, 1994; and Prochazka, 1986; have addressed profusely the art and architectural contexts of the mosque while the behavioral and semantic contexts remained unexplored. Therefore the purpose of this research is: (a) to identify the environmental and behavioral influences that have shaped the American mosque (b) to identify the meanings associated with the resulting spatial composition as pertaining to the *social, psychological, and cultural* contexts, and (c) to identify the spatial consequences of adaptation to the host environment. Because of the heterogeneity of the American mosque, thirteen mosques were purposefully selected from three states – Michigan, Illinois and Texas – that included existing and custom built structures, early and recent structures, sizes, and locations. Two data collection techniques were used: 1) open-ended interviews, and 2) physical surveys that holistically provided cross data validity checks (Patton, 1990). During the open-ended interview sessions, whereby an interview guide was used, thirteen community leaders, *imams*, or members of the boards of trustees were interviewed in the mosque in spaces of their choice. Data were analyzed using open coding (Strauss and Corbin, 1990). Data analysis, specifically the process of categorizing phenomena, whereby taxonomy was used, resulted in several themes: a) importance of the socio-cultural and psychological dimensions, b) semiotic intricacies, c) symbolism of the built environment, and d) synchronism and diachronism of the mosque. These themes were allowed to emerge and took the central stage of the present exploration. Other findings will be discussed with the conference attendees for feedback and generation of further variables.

Keywords: design, meanings and symbolism

DIALOGUE THROUGH ART: A FORUM FOR BRIDGING EAST-WEST CULTURAL DIVIDES

El Kharbawy, A. Sameh (University of North Carolina at Greensboro) [Poster]

In March 2006, the city of Greensboro, North Carolina will host “Dialogue through Art” (DTA), an annual cross-cultural and cross-disciplinary East-West dialogue involving scholars, students and artists from the U.S., Europe and the Middle East. DTA’s pilot project will bring together seven young scholars and artists (two design/art students from the University of North Carolina, Greensboro, a cultural scholar and an artist from Egypt, a designer from Lebanon, a Turkish scholar of cultural studies, and an Emirati student of Islamic architecture) for two weeks. During their stay in Greensboro, participants will freely, candidly and responsibly talk about their cultures and societies, current events and past histories, and translate the emerging “dialogue” in works of art and design. Working with UNESCO’s “Dialogue among Civilizations” (2001) which, in less than four years, has placed the issues of diversity, pluralism, tolerance and dialogue at the forefront of cultural and educational policy debates, the just launched “Alliance of Civilizations” initiative, as well as the European Union’s East-West Partnership Program, DTA aims to foster integrated combinations of research and artistic activities involving artists from diverse cultures and backgrounds; it jump-starts a culture committed to international and collaborative work and adds to it the significant intellectual and cultural richness that flows from new contacts, cross-cultural experiences and the opening up of new areas of artistic and scholarly inquiry. In addition to scheduled conference presentations (in Egypt, France, Lebanon and the U.S. in 2005/6) the Dialogue will have broader cultural and political resonances, and will produce educational materials in various forms, including exhibits of art-work, published papers, conference presentations, white papers, video and web-based electronic documentations. The proposed presentation at EDRA

will be the first of a series of presentations intended to report and disseminate this experience, share its results and capitalize on the lessons learned to continue to build (at the grassroots level) new forms of East-West partnership.

Keywords: theory/criticism, art, design, social issues, cultural politics, modernity

EXPLORING THE CHARACTERISTICS AND THE FUNCTION OF COLLEGE STUDENTS’ “THIRD PLACE”

Iijima, Shun and Hanyu, Kazunori (Nihon University, Japan) [Poster]

Individuals experience various environments in their daily life and each individual has favorite places that they visit frequently, where they feel comfortable and relaxed. Ray Oldenburg, an American sociologist, called those places “the third place”, the place that is not his/her home or office, but has special meanings for him/her. Oldenburg proposed that the third place in a city enhances fascination and attraction of the city. Having the third place make city dweller refreshed and restored. Hayashida et al: (2003) asked workers in Tokyo to list places where they felt comfortable. The research revealed workers in Tokyo often noticed restaurant, café and bookstore as their third places. However, there are few studies focusing the third place itself. In this research we explored the physical and psychological characteristics and the function of college students’ third place. We asked college students to record origins, destination, and modes of all trips in one weekday and one weekend. We also asked about their third places, for example, distance from home/college, frequency of visiting, reason to visit, and so on. Results revealed the characteristics and the function of college students’ third place.

Keywords: the third place, place attachment, urban

FROGTOWN: THE IMPACT OF CULTURAL FORMATION ON BUILT FORM

Brand, Julie (University of Minnesota) [Paper]

Cross-cultural design has been problematized by cosmetic approaches, wherein superficial emblems or symbols of the target culture have been identified, de-contextualized, and inserted into an otherwise culturally non-sensitive architecture. Symptomatic of this problem is the tendency for such designs to emphasize surfaces, decorations, and other physically shallow, visually salient features, while spatial forms and uses remain unaffected, or are only incidentally affected, by the culturally specific program. There is a need for cross cultural designs informed by investigations of culturally specific patterns of spatial inhabitation. Mapping studies were performed in the Frogtown neighborhood, an area of St. Paul, Minnesota with a high proportion of trans-national residents. The findings of these studies were used to develop the design of a renovation to an existing Salvation Army center in Frogtown. Maps and diagrams were created from site investigations to describe a) migration of people and goods through Frogtown; b) alterations to and re-inhabitation of the urban environment, and c) ways by which existing structures have been spatially and materially hybridized to suit needs distinct from those for which they were originally built. The maps showed relationships between human and material traffic in Frogtown and alterations to urban and near environments that resulted in new spatial uses and unique, hybridized forms. Residents acted on their environments in ways that reflected specific, distinct attitudes toward building integrity and ownership, climate, topography, and social interaction. Based on the findings of the mapping exercises, design strategies were developed to systematically describe how the built environment had been altered to support culturally specific patterns of spatial inhabitation. These strategies guided the design of the renovation to the existing structure.

Keywords: Culture, urban/city, aesthetics/meaning, architecture

**THE LABYRINTH AS ENVIRONMENTAL
SPACE FOR HEALING,
RESOLUTION & RENEWAL**

Organizer/Presenter: Marquart, Katja V. (University of Wisconsin – Stevens Point) [Pre-Conference Intensive]

Labyrinths are redefining the notion of “finding common ground” amidst the turmoil of conflict. These environmental walking paths are emerging throughout the world as temporary and permanently installed spaces where individuals and communities can negotiate mental and emotional paths towards healing, resolution, and renewal, as they physically experience walking the labyrinth pattern. This simultaneous journey of body, mind and soul facilitated through labyrinths provides a unique spatial experience that is being used across the world to foster peace. Labyrinths are emerging in conjunction with efforts to build community and overcome social, racial and ethnic barriers. As part of this effort, numerous labyrinths have been installed permanently in public gardens, city parks, schools and universities around the globe. A labyrinth path may be walked for contemplation, relaxation, healing and enhanced self-awareness. These paths are ancient tools that have been used globally as universal symbols for pilgrimage and enlightenment. The exact origin of the labyrinth is unknown. The oldest documented labyrinth design is attributed to the early Greeks. This was later adopted by the Romans, encouraging its widespread use throughout the western world. Labyrinths have also been found outside of Western civilization in the cultures of China, India, the Middle East, Egypt, Peru and Native North America. Within the past few decades labyrinths have slowly re-emerged as contemporary tools for wellness, healing, problem solving and community peace efforts. In South Africa, labyrinths have been used extensively to negotiate race relations and encourage peace following the end of Apartheid. These efforts have resulted in numerous permanent labyrinth installations throughout the region. Another contemporary labyrinth design has recently been in-

stalled in a public park located in St. Paul, Minnesota, joining the communities of St. Paul and Nagasaki, Japan as a way to facilitate cultural exchange. One of the best ways to understand how labyrinths facilitate a mind, body and soul connection, is to experience a labyrinth walk. These experiences will vary depending upon what type of labyrinth is being walked, the surrounding environment in which the labyrinth is presented, and how much information is provided as part of the experience. This session explores how labyrinths have been used throughout history in buildings, outdoor spaces, and as metaphor in cultural folklore. It includes an exploration of how the labyrinth is used as a contemporary tool for healing and resolution, including examinations of case studies in South Africa and St. Paul, Minnesota, where peace efforts between communities and ethnic groups have resulted in permanent public labyrinths installations within the landscape. Participants will have an opportunity to walk and experience two different labyrinth patterns, and a discussion of these experiences and insights from participants will follow. The intensive will conclude with an examination of how patterns and spaces, such as the labyrinth, may be used to promote healing, resolution and renewal within communities.

Keywords: Health/Healing Environments, Social Issues/Social Justice, Neighborhood/Community Planning, Interdisciplinary, Participation

**LADADIKA: PLACE CONSTRUCTING
CULTURE/CULTURE CONSTRUCTING PLACE**

Lafazani, Christiana (Virginia Commonwealth University) [Poster]

During the past few decades, through a great deal of conflict between the government and private owners, Greece has been making an effort to preserve its more recent history by restoring and revitalizing urban areas that were significant to the country’s economic and cultural development. Ladadika is a revitalized neighborhood located in Thessaloniki, Greece. The city of Thessaloniki, with a history of over 2300 years,

forms the second largest city in Greece following Athens. The city also is considered one of the most significant ports of the Aegean Sea, serving the Northern Greek area as well as the Balkans. During the end of the 19th century and beginning of the 20th following the city’s influences and characteristics of the Hellenistic, Roman, Byzantine and Ottoman past Thessaloniki became a prevalent governing, financial, export, mercantile and diplomatic center in the Balkans. It was just at that time that the city was connected with the rest of Europe, the Balkans and Constantinople by the railroad system and its port facilities were updated. During the 20th century Thessaloniki grew fast and widely spread to the outside of the old Walled city. It extended outside the old historical city boundaries and transformed into a large European city. A number of structures in the city have been preserved to represent the various influences and eras. During the last few decades there has been an effort to restore and maintain some of the buildings that were erected in the city during the end of the 1800s and beginning of the 1900s and revitalize certain areas. One of those areas is called the “Ladadika”. This area is located in the city center of Thessaloniki and was originally built around 1880. The area is close to the sea port and was build as a wholesale market for goods such as olive oil, sugar, flour, salt etc. Its name comes from the word “Ladi” which means olive oil in Greek. Architecturally the buildings of the area do not follow one particular rhythm; rather they are a combination of a number of styles and influences. This center was developed in this location due to its proximity to the port and the railroad station. It was used up until the early 1980s as a wholesale market of local as well as imported goods. The area was then abandoned and left to deteriorate. During the last fifteen years, through the collaboration of the city and the owners of the structures, life has been brought back to the area by renovating the spaces and giving them new uses such as restaurants, bars and other gathering spaces. This paper will focus on the overlay of the historical design characteristics of the area and the intersection of all cultures that passed through. A large collection of photographs of the old and new “Ladadika” area will be included in the presentation.

Keywords: culture, urban development, preservation/restoration, historic survey, neighborhood/ community planning.

**THE MODES OF EXPRESSION OF
“KOREANITY” IN MODERN INTERIOR
ARCHITECTURE AND DESIGN**

Kim, Kooksun (Kimpoo College, Kyungki-Do, Korea); Lee, Yeunsook; Lee, Soojin; and Kim, Kyuri (Yonsei University, Seoul, Korea) [Poster]

From the beginning of the new millennium, one of the most frequently discussed topics has been 'culture'. Issues based on culture have been important among various fields of science. Numerous studies regarding cultural identity have emerged in accordance with highly developed information technology. Globalization and multi-culturism have also shed light on the importance of cultural identity. Along with such a big trend, there have been efforts to maintain cultural traditions so that the present can learn from the past and the future can be prepared. In order to find or establish cultural identity, designers have made efforts in their practice to objectify and criticize cultural traditions. Understanding possible modes of expression for cultural identity in this context, Koreanity, can be seen as a basis to promote accomplishments and to develop such methods. The purpose of this study is to investigate modes of expression for Koreanity in interior design cases which were introduced in major domestic periodical publications since 1995. We searched for keywords – tradition, Koreanity, Korean, and Korean style from the titles and the contents of articles and then choose relevant design cases. Content analysis method was used for this study. Forty-three cases were analyzed by 4 conceptual framework of expression a mode of indicative imitation, a mode of partial acceptance, a mode of partial transformation and a mode of conceptual reception. First, indicative imitation mode means the way of pursuing the original traditional interior architecture, in its whole shape or parts and elements. Second,

partial acceptance mode means partial adaptation of traditional elements. Third, partial transformation mode is the way of reinterpretation of Korean style by simplifying and transforming traditional interior architectural parts or elements. Fourth, conceptual reception mode is renewing the principle of Koreanity by contemporary vision of interpretation. As a result, in 47% of total cases, the partial transformation mode was applied, 16% of total was found in the indicative imitation mode, 7% of total corresponds to the partial acceptance mode. The conceptual reception method was used in 30% of the total cases. The total of the partial transformation mode and the conceptual reception mode reached at 77%. These results indicate that Korean designers tend to have more active attitude in expressing Koreanity with interpretation of traditional concept in a contemporary way, rather than simple introduction and imitation of traditional objects. Design examples will be presented according to these four expressional methods.

Keywords: Korean style, tradition, expressional methods

THE PUBLIC LIBRARY EVOLVES: RESOLVING CONFLICT THROUGH DESIGN

Wilson, JoAnn (Texas Tech University) [Poster]

This paper takes note of a conflict of major consequence that has been simmering ever since the impact of the paperless revolution on libraries first began to be both dreaded and heralded in the 1970s. Much paper, ink, and electricity has been consumed in the debate about the future of the library in the information age, and it is well documented. Extensive bibliographies trace the evolution of the discussion and the many issues involved. So pervasive are the implications of it on the way we find, collect, organize, disseminate, and access information that most participants in the discussion feel helpless to do anything but wait to see what evolves. Meanwhile, however, a growing number of central municipal public libraries have sought to defend their mandate

from the perceived threat of obsolescence posed by the virtual library by erecting bold, new, landmark edifices of concrete, steel, and glass, as if by proclaiming their physicality and solidity in space, they could ensure their permanence in the hearts and minds of the public. Monumental in scope and design, these buildings are nevertheless high-tech tabernacles of cyberspace inside, offering connection to vast databases of information, accessible at the touch of a button and with the aid of a librarian well schooled in Web navigation. No longer just warehouses for stacks and stacks of books – in fact, books occupy less of the libraries’ space than before – the new libraries seek an accommodation between the old, tactile world of the book and the new, virtual world of electrons and gigabytes. Poised on the edge of change, they are rooted firmly in a tradition of paper and ink but equipped to move forward with the speed of light. Whether this strategy will save the public library from physical extinction or bury it under the weight of all that architecture, only time will tell. For now, a detailed look at the new Seattle Public Library in photographs and the words of the city’s architecture critics and other players presents an illustrative case of the audacious use of design to resolve a major social, technological, and political conflict and preserve a centuries-old institution.

Keywords: library design, symbolism, contextualism, institutional design, monumental architecture

RECOVERING VIRGINIA’S AFRICAN-AMERICAN LANDSCAPE

Katen, Brian (Virginia Institute of Technology) [Poster]

The Virginia landscape is for many a familiar place rich in historical associations, a place carefully presented and marketed by the Virginia Tourism Corporation and local and regional visitor’s bureaus and historical societies (Virginia Civil War Trails, 1997). The Virginia they champion is revealed through selected sets of iconic sites and “landmarks” often associated with events and citizens central to the history of

the Commonwealth. The Commonwealth’s Colonial plantations, Tidewater towns, Civil War and Revolutionary War battlefields, along with the Shenandoah Valley and the Blue Ridge Parkway, have long served as places that define the experience of Virginia for many visitors and residents alike. More recently, however, an expanded experience of the Commonwealth and the landscape history of its people has begun to emerge through efforts to celebrate the musical heritage of the Blue Ridge region (Fussell, 2003) and the heritage and culture of the state’s African-American population (Virginia Tourism Corporation, 2001; Loth, 1995; Howard, 2002). The richer fabric of the Commonwealth revealed by this more inclusive set of sites has emerged at a time when ways of understanding, perceiving and engaging the landscape have also been questioned and expanded (Dripps, 2005) (Corner, 1999) Building on earlier scholarship that documented the importance of social gatherings in the Virginia landscape (Isaac, 1982; Jackson, 1997) and recent scholarship on “ground,” “site” and place (Burns and Kahn, 2005), this paper presents on-going research focused on documenting and understanding an important but unrecognized set of twentieth century vernacular Virginia landscapes: African-American community gathering places including the educational and social landscapes of “colored” fairs and the entertainment and recreational landscapes of African-American parks, beaches, amusement parks, and black baseball. Each of these physical and social landscapes evolved into places of community pride, social intercourse, ritual, and entertainment in a period of conflict, separation and exclusion. Their recovery constitutes an expanded “ground” of the Virginia landscape. A nuanced ground of the kind suggested by Robin Dripps where “single, uncomplicated meanings are rare” where “relationships...are multiple, shifting, and inclusive” and where “the various patterns of physical, intellectual, poetic, and political structure” are evident. (Dripps, 2005). Long associated with segregation and the conflicted history of race, many of these places have vanished from the Virginia Landscape. And while they may appear to be lost sites, they are not lost ground. They live in the memories and everyday life of communi-

ties throughout the state. Drawing on a variety of documentary evidence including, private journals and photograph collections, African-American period newspapers and oral histories, this research is revealing an important, invisible layer of the Virginia landscape. It offers a deeper understanding of the importance of both the everyday landscape and the regionally distinct aspects of “place” that enrich the Commonwealth – understandings that can inform contemporary design and add important resources and opportunities to the state’s tourism industry.

Keywords: place attachment/place memory, culture, tourism, African-American landscapes, historic survey/archival research

REICHSTAG, GERMANY & PERSHING POINT, ATLANTA: CASES IN PRESERVATION AND CULTURAL BAGGAGE

Tsepas, Sharon (Georgia Institute of Technology) [Paper]

In 1998, the Berlin Wall was torn down and political separation ended between East and West Germany. In the 1960’s, racial desegregation occurred in Atlanta, officially ending racial separation between Whites and African-Americans. In 1993, a long debate over preservation of the Reichstag building in Berlin ended when the decision to resurrect it as the New German Parliament was made. In 1985, a debate over whether to save the buildings of historic Pershing Point in Atlanta ended when the decision to demolish them was made. The debate was the same: should buildings be preserved regardless of cultural baggage? In both cases, the buildings transcended the original architectural artifact and became memorabilia of the people and events that were happening around them. At the Reichstag, the decision to save the building related to both. The restoration both contributes to the architectural heritage of the city as well as providing a symbolic representation of the emergence of a unified state. At Pershing Point, the decision to demolish the buildings was symbolic of the quest for a new state, but not

necessarily a unified one. The struggle with race continues to divide Atlanta, both politically and physically even today. The difference between the Reichstag and Pershing Point examples may very well lie in Christo’s exhibit. This “cleansing” of the Reichstag through silver wraps did not happen overnight like a signature on a building permit. It was a thirty year endeavor that, when orchestrated, provided a backdrop for reflection and perspective that provided a vision for the future. In many ways, Atlanta is still waiting for this.

**THE ROLE OF LAW IN PRESERVING
VISUAL PRIVACY IN TRADITIONAL
ISLAMIC CITIES AND CONTEMPORARY
NORTH AMERICAN CITIES**

Islam, Mohammed (North Carolina State University) [Poster]

This paper suggests a similarity in one particular aspect of traditional Islamic cities and contemporary North American cities. The aspect concerns conflicts between people of different cultural backgrounds living in the same city. Conflict may result from different issues. However, this paper concentrates only on conflicts related to visual privacy within urban areas. Privacy becomes an important aspect when people live in close proximity. The Qur’an teaches the importance and virtues of privacy and the right to it. Qur’an is the main source of Islamic law. Law has played a major role in preserving privacy in the traditional Islamic cities like Fez, Morocco. Citizens of contemporary North American cities consider privacy as one of their fundamental rights. This paper argues that law can also play a major role in preserving privacy in the context of contemporary cities.

The geographical influence area of the religion of Islam grew tremendously after the death of the Prophet Muhammad (632A.D). The region grew from a tiny city called Medinah (a small town located in present day Saudi Arabia) and reached Asia within a period of only a few years. During this period of rapid growth, the city dwellers for the first time came in con-

tact with people of different cultural backgrounds. The new situation resulted in urban disputes in traditional Islamic cities. For example, opening a new window was always a source of conflict among neighbors. The jurists considered each case according to its idiosyncrasy.

For North American cities, the flow is opposite. Here, the geographical area is not physically extending but immigrants are joining in and giving rise to the same situation as in Islamic cities years before. Contemporary North American cities have a population of different cultural backgrounds coming from varied geographical area (for example, among the population of the New York city, 44.7% are white, 26.6% are African-American, 9.8% are Asian and 4.9% are of two or more races according the Census of 2000). Urban conflicts involving privacy among city inhabitants are bound to happen, even if it is not occurring now. City people live in close proximity. Proximity stimulates conflict related to privacy between neighbors even if they are from the same cultural background. Therefore, it is very easy to imagine contested situations among neighbors who have different views, needs and values for privacy but living in the same American urban area. This paper observes ‘conflict’ as a positive phenomenon, when it leads to a better solution for the future.

According to the Oxford dictionary the word, ‘conflict’ has its root in the Latin word of conflictus, meaning a ‘contest’. Contest is a positive event, because it provides us with a winner. A winner can be a person, object or an idea/solution. However, to solve a contested situation, a structure of guidelines is needed or law to follow. Law is important in this situation. It has played a major role in solving urban disputes at traditional Islamic cities and in a way, has shaped the urban areas. For example, even the height of the window of traditional Islamic cities derived from the concept of privacy. The height of the window was made in such a way so that a passerby will not be able to look inside the house. This paper will briefly discuss the source of Islamic law, the process of judgment and will present actual cases related to urban disputes among neighbors living in Fez, Morocco to understand the role of law in shaping traditional Islamic cites. These cases reflect law’s influence at the micro level, however the paper argues that if we

compile all the micro-level influences of law then we can acknowledge law’s significant role in shaping the entire urban area. The professionals involved in shaping the contemporary city must acknowledge this issue of contested situations and law’s role to ensure harmonious growth of urban areas, particularly when designing the public domain. Contemporary professionals can learn from the processes and methods used to solve urban disputes at Fez, Morocco during the period of 9th to 15th centuries. This paper does not claim that the same method and law used in Fez can be applied in contemporary situations. But it hopes that the process of solving disputes in Fez will shed light on the current contested situation of contemporary urban areas.

Keywords: privacy, urban, architecture, historic survey, Islamic architecture

**THE TEMPORAL RECONCILING OF
SUB-CULTURAL GROUPS IN LEISURE
ENVIRONMENTS: THE CASE OF ABDOUN
CIRCLE IN AMMAN-JORDAN**

Bustami, Leila Hamdi (University of Science and Technology, Jordan) [Paper]

This transactionally oriented study investigates the environmental phenomenon of the elite Abdoun Circle in Amman-Jordan and tries to understand why the commercial business-like district that looks ordinary in daytime turns into a unique leisure environment at night in summertime and during the weekends. Guided by the steps suggested by Carol Werner and her colleagues (2002), the study seeks to explore the mutual definition and the changing interrelationships among the physical environment of the place and the activities of its customers. Original data have been collected through observing, taking photographs, surveying, listening to others’ opinions, and investigating related issues. That data have been organized around the theme of late modernity in Amman, and analyzed in conjunction with the ideas of newness, emotion, and meaning. Measuring the intensity of the embodi-

ment of those ideas is done through using a scale for rating and scoring relevant collective impressions of both the setting and its activities at two points of time (morning and night). The results of the study explain the interconnections among and between aspects, and in the same time point out to the reconciling impact of the setting’s social geometry on its sub-cultural group customers in making them feel privileged and equal. The contribution of this study lies in its intention to predict, control, and communicate (Habermas, 1971) in a developing country like Jordan where behavioral studies are scarce and needed.

Keywords: behavior change, meaning, emotion, culture, social issues

DIGITAL ENVIRONMENTS & TECHNOLOGY

ACTUAL CONDITIONS AND DIRECTIONS OF USER-INTERFACE SERVICES OF DIGITALLY CONVERGED HOME APPLIANCES FOR THE UPCOMING UBIQUITOUS ENVIRONMENT

THEMATIC
ABSTRACTS

Digital
Environments &
Technology

Lee, Soojin; Lee, Yeunsook; Lee, Jungmi; Jung, Eun-joo; and Kwon, HyunJoo (Yonsei University, Seoul, Korea) [Poster]

It is predicted that the greatest change in the 21st century arises from the rapidly transforming digital environment. The convergence of computer and telecommunication technologies is now encroaching into the social realm. Actually, technology has already begun to produce homes equipped with digitally converged appliances, which are able to be controlled from the outside of home, now the home can be used like a personal computer. These technologically advanced machines are the next generation of appliances appliances converged with computers and a home networking system which connects DVD players, digital video equipment, refrigerators, computer, communication equipment, etc to each other and to the internet. Our daily lives will be substantially influenced by these internet-savvy informational appliances, especially in the ubiquitous environment. They will function as a bridge to connect every service including home management, entertainment, education and office-work support together. However, these appliances currently don t provided practicality in the sense that they can t typically keep up with the speed of technological development. Actual conditions of the digitally converged function and consumer requirements need to be determined in order to properly prepare for upcoming future environments. The purposes of this study are as follows: First, this study examines the actual conditions of digitally converged functions through the average use rates. Secondly, this study analyzes consumer needs in order to present suggested directions of improvement regarding user interface services and digitally

converged home appliances. A specially developed program for this study was employed to operate the survey. A web questionnaire survey was conducted among the visitors of an exhibition held in Nov–Dec 2004. Participants were asked to complete this computerized survey by clicking on their appropriate answers on a web-page style questionnaires using a mouse. Only the data with more than 80% response rate to each questionnaire were used resulting in the digitally converged functions of refrigerator, washing machine, and TV being examined. SPSS PC window version 11.0 was employed for statistical analysis. The usability of washing machine s simple functions was indicated most important (46.1%). The average usability rate of the functions of TV was 24.5%, and in the case of refrigerator with various functions, 10.5%. The reasons of low usability of the refrigerator s functions were that many participants reported these features to be either useless (57%) or complicated (19%). The findings showed that a variety of digital functions in the market made users confused, and they seemed to find many of them difficult to use. Therefore the digital functions should be more user-friendly in order to bring the effective ubiquitous home environment closer to our lives.

Keywords: Digital convergence, home appliances, ubiquitous environment

ANALYSIS OF HOME NETWORK SERVICES AND ENVIRONMENTAL CONTEXTS IN A DIGITAL HOME EXHIBITION IN KOREA

Lee, Soyoung; Lee, Yeunsook; Lee, Jungmi; and Kim, Misun (Yonsei University, Seoul, Korea) [Poster]

New technology, ubiquitous technology is expected to change the way of living enormously through not

only behavior but the physical environment setting as well. Technology development and its application have accelerated changes in our living environments already. Especially in Korea, housing development firms are experimenting with new technology in large apartment complexes. In order to ensure new technology will meet needs of people and their ways of living, it is necessary to examine the behavioral, cultural, and environmental context where this technology is applied.

The purpose of this study was to examine home network services and environmental context in housing and understand how the intended characteristics of home network service met the needs of residents and how compatible these features are with the existing physical environment components. Four living models built by apartment development firms which participated in the digital home exhibition were analyzed. Home network systems were classified into entertainment, database service, home information service, automation service, security service and healthcare service. Each system was examined according to location, installation methods, and type of service offered. Based on the investigation, 27 life scenarios were developed.

All four home network services featured in the exhibition had common features. Security systems control the main entrance for each house unit. In the living room, WebPad was designed to control the indoor environment climate and control the entire technological system. In the kitchens and dining rooms, digital screen and control system were installed in the refrigerator which relayed the condition of the inside of the refrigerator. All network systems featured were built-in as a fixed unit on the wall or integrated into home appliances.

THE COMPLEXITY OF CONFLICT: WHY SOME INTERACTIVE GAMES SEEM SO DANGEROUS

Wilson, Johnny L. (Executive Vice-President for Content and Community, Manifesto Games) [Paper]

With a Ph.D. in Old Testament Studies, granted from a conservative School of Theology, it is no

wonder that I travel about in circles where people are less than patient with symbolic structures of the popular culture. Some feel that fiction is inappropriate. They ask why one would want to read the “brain candy” of what never happened, failing to realize how the cliché – “Some stories are true that never happened.” – explains how readers of fiction practice a pattern-recognition with characters and situations. Many a modern reader has learned about the latest military equipment and intelligence techniques by reading the novels of Dale Brown, Tom Clancy and Stephen Coonts. Certainly, many of us learned the horrors of the Soviet police state from Solzhenitzyn’s life-like novels and some of us learned to admire the great General Kutuzov from Tolstoy’s *War and Peace*.

I suggest to you that the individual who disdains the reading of fiction, even “brain candy,” on the basis of a faux-sophistication or spiritual arrogance actually suffers from a deficit in pattern-recognition. The famous Strother Martin line from Cool Hand Luke about a “failure to communicate” is rather accurate. When I interact with those who consider themselves too spiritual to experience fiction – whether in comics, novels, television, or film, I recognize their own fear concerning the historicity of the Bible. If they lose the historicity and discover that the scriptural text approaches a truth via symbolism, the reliability of the entire Bible falls like an old building imploded in demolition. Rollo May (1991:24) spoke of this mindset in *The Cry for Myth*:

Even people of high intelligence speak of ‘only a myth’ as a deprecatory phrase; ...This use of the word “only” as a deprecation of myth began with the Christian Fathers in the third century A.D. as their way of fighting against the common people’s faith in Greek and Roman myths. The Fathers argued that only the Christian was true and the Greek and Roman stories were “only” myths.¹

In the same way, there are many people within my sphere of social interaction who observe my interest in games (role-playing games, board games, war games, and PC games) and write off my efforts in that behalf as “only a game.” Such observers miss something vital

THEMATIC
ABSTRACTS

Digital
Environments &
Technology

about games. Games are opportunities to experience situations that could be dangerous or expensive in actual life. Game play (among other entertainment activities), as Mihaly Csikszentmihalyi (1990:59) observed, “...is typically described as involving a sense of control – or more precisely, as lacking the sense of worry about losing control that is typical in many situations of normal life.”² He went on to suggest that said descriptions would be more accurate if they spoke of the possibility of control rather than the actuality (Csikszentmihalyi, 1990:60). He concludes that people don’t really want to actually be in control. They want to exercise control outside the safety net of protective routines and influence a doubtful outcome in order to assure themselves that they can control a given situation (Csikszentmihalyi, 1990:61). This would be true whether one was building a fantasy baseball team, fighting World War II anew, building a city from scratch, or investing in a tricky environment. It isn’t the assurance that we will win that counts, it is the possibility that counts. Somewhere in our own unique approach to problems where others have failed, we might succeed. And, whether we succeed or fail, we learn something.

Games offer interesting choices where the consequences are limited to the game world. As such, they provide a fecund laboratory for experimentation, as well as an entertaining playground for escaping one’s real-world limitations. In the game experience, we simulate (in a symbolic transaction) the kinds of choices we might have to make in normal life. Indeed, there may be a considerable amount of personality building and maturation taking place in these symbolic choices, as in real-life choices.

People attain worth and dignity by the multitude of decisions they make from day by day. These decisions require courage. This is why Paul Tillich speaks of courage as ontological – it is essential to our being (May 1975:14).

Most recently, at the 2006 Game Developers Conference, Noah Falstein suggested that “Fun is about practicing or learning new survival skills in a safe setting.” His thesis is that fun derives from practicing primitive survival skills in a modern guise. Since we think of

primitive skills as being tied to hunting and gathering, he suggested a game analog where shooters and even games with weapons in general are analogous to the hunting instinct; collecting power-ups and resources would be part of the gathering aspect; and participating in multiplayer online experiences or artificial life experiences like The Sims™ would fill the social, tribal needs.

What was interesting to me, however, was the lack of conflict and the preparation for conflict as specific survival skills. Perhaps, the act of conflict in games was assumed. As in life, game conflict can be territorial (manipulating the environment and its resources for the maximum benefit for one’s self or group – could also be called “economic”), physical (moving beyond territory to physical competition and its ultimate corollary, violence), and/or psychological (manipulating self and others to the advantage of one’s self or one’s faction). As drama requires characters in conflict, so does successful game play.

Falstein observed three overlapping categories of survival skills: Physical, Social and Mental. The Physical category would emphasize activity, exploration, gathering and tool use. A portion of the physical may well be physical or military conflict. The Social category would focus on gossip, storytelling, flirting, and social identity. The Mental category uses pattern matching, problem-solving and language. As a result, Falstein concludes that games really do teach “survival skills” within the rubric of play. The goals, of course, are solved as players make a series of “meaningful choices.” After demonstrating several structures of games, past and future, Falstein noted that these choices have to be ‘perceived’ as meaningful, not necessarily ‘actually’ be meaningful. After all, as we observed earlier, the joy is taking in-game risks without experience out-of-game risks.

One danger of merely observing this approach at face value is that designers may become so enamored with the survival skills approach that they may focus too much on “education” and not enough on “entertainment.” When this happens, we have often seen the game choices strangled by an outside agenda. This actually works counter to the purpose of using a game design to socialize or educate. For example, flight simulation-style trainers that do not allow crashes are

of limited appeal as games, but in some circumstances are discouraged as a result of the end goal of the sponsoring institution. Yet, virtual pilots learn a lot more when the risk is there (gamewise), but not there in terms of actual life. Naturally, driving games have something of the same phenomenon.

The following illustrate some of these points from my own gaming experiences:

- a) Investment Literacy and Overconfidence – *Millionaire and Tycoon*
- b) Political Savvy – *Power Politics, Making History* and *On the Campaign Trail*
- c) Military Strategy – *Battlefront, Korsun Pocket* and the Concept of Brittleness
- d) Management – *CyberJudas, Stronghold* and unnamed Space Station game
- e) Driving and Flying – *Grand Prix Legends* and *Jane’s Flight Sims*
- f) Sports Management – *Baseball Tycoon 2006* and Fantasy Hockey
- g) Medicine – *Life and Death II*

Keywords: Digital Environments, games/game play, survival skills

References

May, Rollo (1991) *The Cry for Myth*. New York: W. W. Norton

Csikszentmihalyi, Mihaly (1990) *Flow: The Psychology of Optimal Experience*. New York: Harper & Row

May, Rollo (1975) *The Courage to Create*. New York: W. W. Norton

CREATING DIGITAL WORLDS: GAMING AND MASSIVELY MULTIPLAYER ENVIRONMENTS AND COMMUNITIES

Organizer: Greenberg, Andrew (Holistic Design Inc.) [Symposium]

The explosion of on-line communities and game-worlds has mushroomed faster than research can

keep up, with more than 300 million active on-line users. The larger on-line games have more than five million participants, and many on-line communities have millions of active users. This session focuses on creating successful digital environments, as well as the conflicts unique to computer games and electronic entertainment. One of the most foremost researchers on serious games and games for health, Ian Bogost of Georgia Institute of Technology is both a game designer and leading researcher on computer games. His recent book *Unit Operations: An approach to video game criticism* serves as the premier edition on this new literary-technical theory. Johnny Wilson of Manifesto Games is the author of the most comprehensive history of computer games as well as the former editorial director of “Computer Gaming World.” Wilson has served as the leading figure in computer game criticism for over two decades. Andrew Greenberg, vice-president of Holistic Design, Inc. has designed several very successful computer games, as well as writing on electronic entertainment for the Matthew Bender series of legal text books. Greenberg, a recent nominee to the Academy of Adventure Gaming Arts and Design Hall of Fame, is best known for his work in creating fictional worlds. Join these three gaming industry leaders for their exciting presentations focused upon resolving conflicts unique to computer games, internet gaming communities, and other forms of electronic entertainment.

Keywords: Communication, conflict, culture, technology/computer applications

ENVISIONING INTELLIGENT BUILT ENVIRONMENTS

Taylor, Patricia (Independent Scholar) and McGrath, Robert (University of Illinois at Urbana – Champaign) [Paper]

Intelligent built environments offer new opportunities to augment daily life – at home, at work and at play. In laboratories across the world, researchers are designing and building prototypes for a wide range of

intelligent or “smart” rooms and buildings. This paper surveys some of the qualities envisioned for intelligent or smart built environments and provides examples. First, we look at the scale of such environments, and provide some examples. Intelligent environments range in scale from a table top, to a single room (e.g., college dormitory room, media room) to entire buildings, neighborhoods, and potentially, cities. Second, we look at the modes in which environments may be intelligent. An intelligent environment may be passive, waiting for its user(s) to request something of it, or it may be active, at the most basic level, carrying out programmed instructions, and more powerfully, trying to anticipate its user’s needs. Third, we examine some of the proposed functions of these intelligent environments. Such functions range from producing preferred lighting, heating, and communication settings, monitoring the health of and assisting in daily living activities for the elderly, ordering supplies for the environment (office supplies, groceries), even sensing emotions of people within its bounds in order to try to figure out what it (the computer system) should do. Fourth, we discuss a number of key design and social issues that need to be addressed to make these envisioned environments intentionally intelligent, rather than accidentally smart.

Keywords: technology/computer applications, housing/residential, theory/ conceptualization

PLUGGED-IN AND TUNED-OUT: DIGITAL TECHNOLOGY AND PUBLIC SPACE

Palmer, Joni (University of Colorado at Boulder)
[Paper]

This paper presents preliminary research from a set of case studies, conducted in Boulder, CO, of digital technology and public space. I began thinking about this unique condition of the 21st century when I arrived on the University of Colorado at Boulder campus this fall and noticed how students were constantly “plugged-into” their ipods, cell phones, and/or wireless technology. I started looking around and found that the same thing was happening on

the pedestrian mall and in the open space/hiking areas in Boulder. My primary interest, however, is on the college campus. The questions this research pursues: 1) how is landscape perception different in our connected/digital age, 2) how have/are digital technologies changing our experience and use of the landscape/public space? 3) How might we address these issues in the classroom and studio, and in practice? This paper responds to the conference them is a somewhat, though important, tangential manner, as this condition of being “plugged-in” does have the potential to incite conflict and confusion? This paper will address how we, as designers and planners, might address such potential conflicts.

Keywords: digital environments, college campuses, digital technology, landscape perception, public space,

TECHNOLOGICAL INNOVATIONS: CONFLICTS IN SOCIAL AND BUILT ENVIRONMENTS

Organizers: Oliver, Carol and Larson, Heather (City University of New York) Presenters: Oliver, Carol (Graduate Center – CUNY, NY); Larson, Heather (Graduate Center – CUNY, NY); Lippman, Peter (Associate AIA , City College – CUNY, NY); Taylor, Patricia (Independent Scholar, IL); McGrath, Robert (NCSA, University of Illinois at Urbana – Champaign, IL); Donovan, Gregory (Graduate Center – CUNY, NY); Antonitas, Lya Mainé (Hunter College – CUNY, NY); Ouye, Joe (Research for Design and New Ways of Working Network, CA); Case, Duncan (University of Nebraska – Lincoln, NE); Pedersen, Kari (University of Nebraska – Lincoln, NE); Toothaker, Chris (University of Nebraska – Lincoln, NE); Goldsberry, Matt (University of Nebraska – Lincoln, NE); Boe, Ryan (University of Nebraska – Lincoln, NE); Haq, Saif (Texas Tech University, TX); and Pramanik, Adetania (Texas Tech University, TX) [Pre-Conference Intensive]

The presenters in this half-day intensive will explore (1) various emerging technologies, (2) their use by different populations, and (3) conflicts that arise. A range of innovative technologies will be described including smart buildings (homes, libraries, resource centers, performance spaces, and memorial museums), portable workstations, handheld devices, virtual environment apparatuses, and an assortment of Web and wireless infrastructures. Smart buildings benefit people’s everyday lives by integrating computer systems into the physical structure and using emerging ubiquitous and pervasive technologies so that for many functions, the computer can “disappear” into the background. A variety of proposed “smart homes” and related research on what consumers believe the ideal smart home will be examined. A number of key design and social issues need to be addressed to make homes intentionally intelligent, rather than accidentally smart, as smart home technology emerges from the laboratory into the consumer market. The next presentation moves from technological conflicts in the built environment to new challenges emerging from the virtual environment. Specifically, a simulated hospital was constructed to study wayfinding in the virtual environment. The researchers replicated a wayfinding experiment that was conducted in a real hospital to capture the elements of virtual environments, to refine the apparatuses, and to understand the effects of these limitations on the validity and reliability of the wayfinding study. Even though virtual simulations, smart devices, and Internet technologies are gradually improving, it is important that we understand the negative and positive impacts on different people (students, office workers, and politicians). Next, the negative impact of the Internet on some students living in developing countries will also be a topic of discussion. This study presents the relationship between consumers’ Internet habits and Internet addiction in Peruvian university students. The remaining presenters will describe the importance of people exerting control over technology and modifying it for their own purposes. Most corporate office workers today no longer work “at their workstation in the office.” Instead, they have taken their wireless laptops to work at home or at Starbucks, despite management policies and desires. The results are conflicts

about work styles, management styles, resources, and work places, not to mention lost productivity, miscommunication, and millions of dollars of expensive, underutilized real estate. This presentation describes the gap between the new ways people are actually working to corporate assumptions, identifies the reasons for this gap, and offers some possible solutions for closing it, with examples from IBM, Sun Micro, Cisco and other companies. The next panelist will discuss how political actors, specifically those involved in the 2005 mayoral elections in New York City, use their websites to foster political participation and discourse. Lastly, learning environment research will demonstrate how both socio-cyber and socio-physical learning environments can be designed to encourage participation. These activity settings must be integrated, flexible, and provide a variety of areas to support learning and knowing. Following the presentations on people’s use of Internet technologies, emerging smart technologies, and innovative virtual environment apparatuses, the audience will be invited to participate in stimulating discussions concerning the social and design implications surrounding technology.

Keywords: technology, design review, housing, social issues, workplace.

THEATRE OF EMBEDDED INTELLIGENCE

Beorkrem, Christopher and Sauda, Eric (University of North Carolina – Charlotte) [Paper]

The Theatre of Embedded Intelligence is a joint research effort between the Digital Design Center at the College of Architecture at UNC Charlotte and the Children’s Theatre of Charlotte. Working directly with Alan Poindexter, Art Director of the Children’s Theatre we have been investigating and designing possibilities for creating a computer generated/controlled setting for a full production performance.

Much of the research in computer visualization and user interfaces has focused on the use of computers in expanded settings and the extension of the user interface. This initial research project begins the investiga-

tion of possible computer interfaces for incorporation into live performances. We have identified some feasible alternatives using motion & gesture capture as well as real-time audio and video compositing, in addition to finding methods for giving the actor specific control over computer controlled devices, making the computer a physical actor on stage. We have been creating prototypes of interactive computer environments during the semester as tests. By pulling from a variety of resources the new combinations of digital tools sometimes create intriguing environments both on stage, within the audience, and throughout the lobby and theatre building.

Two issues have become central to our investigations; the first is to find methods, which engage the computer in a way that is methodologically distinct from traditional staging techniques. Rather than seeming to be controlled by the action, we are seeking ways that the stage itself is clearly part of the action. Secondly, we are working to find how this capability is important to the meaning of the play. One tentative example is the use of a computer-controlled set as a part of the staging of *The Tempest*, where Prospero is re-envisioned as a game designer.

Through consultation with the production company we are working to have a method in place for fall 2007 production of “Go, Dog, Go” a children’s story. We have been looking at work by the Wooster Group, Troika Dance, Active Space, Miralab and Messa di Voce, but also the work of more design based firms and artists, like Asymptote, and Diller, Scofidio & Renfro.

In finding a director and set of actors from the Children’s Theatre, who are open to exploring and rethinking themselves we have found an ill-defined and compelling partnership. This project makes a unique mix of digital, architectural and stage based technologies and ideas, which are brought together to create a spatially compelling and entertaining scenario for all in involved.

*THE USE OF VIRTUAL ENVIRONMENT AS
A TOOL FOR WAYFINDING RESEARCH
IN ARCHITECTURE: COMPARISON OF
VIRTUAL AND REAL ENVIRONMENTS*

*Pramanik, Adetania and Haq, Saif (Texas Tech
University) [Poster]*

Virtual Environment (VE) technology has been spotted in several different areas such as in the military, the aircraft related industry, and the entertainment industry. The frequent usage of this technology nowadays is derived on its trait that allows humans to actively interact with the environment and carry out such behavior as driving, running, walking, firing guns, opening doors, reading signs and so on. VE technology permits individuals to have a more direct interaction with an environment. This is vastly different from simply viewing a walkthrough animation, where the movement through the environment is predetermined by an operator or designer. Having qualities of user defined movement; VE can also be a prospective tool in the area of environmental behavior research (de Kort, Ijsselsteijn, Kooijman, and Schuurmans 2003). It offers experimental research conditions that are easy to define, control, and duplicate – factors that would be difficult to create in the real environment. It needs to be noted, however, that with all the possibility that VE has to offer, the current technological limitations still creates experiences that are not exactly the same as that in the real environment. Wayfinding research has postulated that the built environment plays a significant role in the wayfinding process. Unfortunately, there has been a lack of conformity regarding which environmental elements are important in the process. One reason could be the problem of measuring environmental variables objectively. This is where VE promises to be effective. VE technology has the potential to create wayfinding research conditions similar to in real environments but also allows the researcher to limit extraneous variables. However, since the use of VE, particularly in this area, is relatively new, its ability as a research tool needs to be evaluated. That is the purpose of the

experiment reported in this study. This study analyzed the applicability of a VE as tool to replicate a real environment in which a wayfinding experiment was done. The VE model was a representation of corridors located on the second floor of a real hospital used in a previous Haq’s experiment (2001; Haq & Zimring, 2003). Thirty-two subjects carried out the same experimental tasks in the VE as the experiment in the real environment. The success of this study was anticipated by extent to which Haq’s experiment could be replicated in the VE. This was measured by the percentage of subjects who were successful in completing the experiment, the similarities found in the number corridors used for exploratory search in Haq’s study and in VE, and the similarities found in the subjects’ success in finding destinations. This exploratory study found that there were general similarities between the wayfinding experiments conducted in VE and real environment. The differences found between both environments were explained by the technological limitations and the presence of extraneous variables in the real environment setting.

Keywords: technology/computer applications, wayfinding, experiment, architecture

References

de Kort, Y. A. W., Ijsselsteijn, W. A., Kooijman, J., & Schuurmans, Y. (2003). Virtual laboratories: Comparability of real and virtual environments for environmental psychology. *Presence*, 12(4), 360–373.

Haq, S. (2001). Complex Architectural settings: An investigation of spatial and cognitive variables through wayfinding behavior. Unpublished PhD Dissertation, Georgia Institute of Technology, Atlanta.

Haq, S., & Zimring, C. (2003). Just down the road a piece: the development of topological knowledge of building layouts. *Environment and Behavior*, 35(1), 132–160.

*WEB-BASED SURVEYS AS AN EFFECTIVE
TOOL FOR COMMUNITY PARTICIPATION
IN URBAN DESIGN – A UNIVERSITY
AND COMMUNITY OUTREACH PROJECT
FOR REDDING, CA*

*del Rio, Vicente and Levi, Daniel (California Poly-
technic State University – San Luis Obispo) [Poster]*

There is no doubt that one of the most effective pedagogies is “learn by doing”, particularly when dealing with design education. Cal Poly San Luis Obispo subscribes to this pedagogy, which the City and Regional Planning Department applies at both the undergraduate and graduate levels. This encourages us to perform community outreach functions, which is an important social role of higher education. The department has been an active player in the development of California’s communities by responding to planning and design needs from counties, cities, and private institutions. In the winter of 2005, the graduate Project Planning Lab responded to a request from the proprietors and architects of a 27-acre site on the Sacramento riverfront in Redding, CA. Close to the downtown and mostly vacant, the area had an incredible potential for development and to anchor a major revitalization process that would encompass not only the surroundings but the downtown itself. The largest constraint was a long-term political dispute among stakeholders: the city, a powerful local foundation, and the proprietors. The Cal Poly Project Planning team created the neutral ground needed to make the process move ahead. After the traditional phase of data collection and inventory, the class conducted a field survey using the Internet that explored respondents’ perceptions, attitudes, and expectations about the site. The web-based survey examined the respondents’ attitudes about the city and project area, what they thought the new design should entail, and their visual preferences among several design alternatives. The local newspaper supported the project by promoting the survey. They published a class article on waterfront revitalization and on the importance of the site, and where readers were asked to participate

in the design process by responding to the web-based survey. The survey was available for 10 days and received over 850 responses, plus several letters, emails, and phone calls. This high rate of response demonstrated the community’s interest in the future of the area, and provided us with a rich amount of information for the programming and design phases. This lead to a final design concept that was responsive to the community’s expectations and satisfied the desires of the proprietors. Newspaper coverage announcing the results of the survey, and later the final design itself, preceded the class’ presentation of the project to the community in a public session. The community responded positively to the proposal and approved it without restrictions. The local media supported the project in subsequent articles, often by noting the inappropriateness of the existing city specific plan. The process prompted the city council to appoint a community advisory committee to study the proposal, promote meetings with all stakeholders, and develop recommendations. The support showed by the community, local government, and the proprietors demonstrate that the class was successful with their design proposal. This success would have been impossible without using the web-survey as a fundamental tool for incorporating public opinion into the design programming process.

Keywords: learn-by-doing, community outreach, waterfront revitalization, web-survey, perceptions

ENVIRONMENT-BEHAVIOR EDUCATION & RESEARCH

EMERGING OPPORTUNITIES FOR ENVIRONMENT & BEHAVIOR EXPERTISE – ADDRESSING STUDENT CONCERNS

Organizer: Rowley-Balas, Susan (Université de Montréal, Canada) Presenters: Rowley-Balas, Susan (Université de Montréal, Canada); Barnes, Janice (Perkins+Will, Midwest Region); and McCoy, Janetta (Interdisciplinary Design Institute, Washington State University, Spokane) [Symposium]

EDRA members recognize the important role that students play in the future of the organization. This is a forum for students to receive support in their endeavors, voice their concerns and ask questions. All EDRA members and non-members, including faculty and practitioners, are invited to assist with this forum. An overview of future issues in higher education, employment opportunities, as well as the role of EDRA in responding to these issues will be discussed. Emerging opportunities for Environment & Behavior expertise will be presented along with a review of the necessary skill sets required to seize these opportunities. Examples of these skills in action will be presented to give a sense of the practical application of this knowledge. This topic will appeal to those interested in practice as well as to faculty seeking a cross-disciplinary perspective. Issues in higher education to be discussed will include: funding; getting started; finding focus; time management; life beyond the “room writing a thesis”; and job-hunting for an academic position or for work in practice. Finally, the role of EDRA and the vital role that students play in the organization will be discussed. The future of EDRA and the vision of the organization as seen by student members will be examined.

Presentations in this symposium include:
1. *Environmental Design Research – Naming the Future.* Rowley-Balas, Susan (EDRA Student Representative, Université de Montréal, Faculty of Environmental Design)
2. *Emerging Opportunities in eb/ob Expertise – A Practice-based Approach.* Barnes, Janice (Perkins+Will, Chicago)
3. *Opportunities in Academia* McCoy, Janetta (Interdisciplinary Design Institute, Washington State University, Spokane)

MEET THE EDITORS

Organizer: Bechtel, Bob (University of Arizona/ Environment and Behavior); Gifford, Robert (Journal of Environmental Psychology); Seidel, Andy (Journal of Architecture & Planning Research); and Hecht, Peter (Design Research News) [Symposium]

Join EDRA members who serve as editors of numerous journals for a presentation regarding publishing research and design work related to environment-behavior studies and research-informed design. Editors will provide an overview of numerous journals as well as advice to those interested in publishing their research work.

STUDIOS

A CONFLICT IN MEANING

Witt, Tom (Arizona State University) [Paper]

Design ends with a plan (Rittel 1970), which, if implemented, results in a product without unforeseen side effects – a tangible, useful artifact capable of fostering intangible experiences and services. A successful product addresses the needs of all those who are affected through out the entire life cycle of the product: users, designers, and service providers (Morelli 2002). As the range of products expand from mere physical artifacts to such ethereal matters as lifestyle, status, systems, services, and experiences, the more difficult it becomes to identify the end-user and the needs that ought to have been addressed in the design process. “Ultimately, design is about values. Designer values, user values, societal values and so on (Giard 2000).” It is the consensus of society that ascribes the cultural meaning, significance and value upon a product, and not the designer, client or manufacturer. Should the designer’s role be that of a director, or a facilitator in addressing the connection? “In addition to the classical tenants of structure, function, and aesthetics, a more socially responsible design must acknowledge and engage the complex relationships between individuals, society and their artifacts. ...The challenge lies not in dictating meaning but perhaps in developing an object’s capacity for meaning (Tharp 1999).” The relevance and benefits of various social science approaches to research in design in order to address more effectively the users’ needs, and hence increase the likelihood of product success, has become the focus of much discussion in recent years. For example, ethnographic research, observation in situ of potential end-users, is a technique being recognized and advanced by some designers in research firms, corporations, consultancies, and academia. The intent here is to explore the relationship between the design process and design research and the social

and cultural context for which a designed artifact is intended. Further, to see if a successful product creates its own social circle and cultural adoption, or if the society and culture acts as a rigid dictating force. In this paper I with a look at the design process in the light of a *wicked problem environment* – problems that cannot be defined without simultaneously solving them (Rittel and Webber 1969). Then, I proceed to a review of research methods intended to identify end-user needs and aspirations relative to the artifact produced by the plan. Finally, I conclude with an examination of cultural meaning of artifacts as a product of design, whether meaning is directed by designers or dictated by society and culture and whether research supports or inhibits the success of the artifact in the market place. Metaphorically, what variable is the chicken and what variable is the egg, and which comes first.

Keywords: aesthetics, meaning, communication, culture, qualitative research

DESIGN-STUDIO CLASSROOM ENVIRONMENTS: DESIGN & SATISFACTION

Obeidat, Asem (Texas Tech University) and Amor, Cherif (Texas Tech University) [Paper]

Students and instructors suffer from classroom interior environments such as inadequate lighting, noise, glare, poor air quality, inappropriate temperature, uncomfortable seats and inflexible seating arrangement (Rydeen, 2003). Nonetheless, research findings suggest that a high quality interior design improves not only the function of a learning environment but also the confidence of its users involved in the teaching/learning process (Webber, Marini, & Abraham, 2000). Interior design teaching/learning activities, which may include lecturing, demonstrating, and practicing, require a specific setting that should be designed to facilitate such activities. This study finds impetus in the lack of research data relative to the design of the design-studio classroom, most crucial space in interior design and architectural education. The purpose of the study is to examine the design-studio

classroom environment and to determine, by the perception of its users, to which level this specific environment assures users' needs and objectives. To do so, this study addresses the following questions: 1) How important is to have designated design-studio workstations in interior design programs in the United States? 2) What are the factors, both positive and negative, and characteristics of the design-studio classroom environments that are most important for teaching/learning process of interior design in the United States? And 3) How do interior design educators use the design-studio classroom environment in their teaching procedures?

A survey was developed and distributed online to a purposive sample of interior design educators. The survey instrument included 13 questions designed to address the three main research questions. Two of the survey questions provided background information about the participants, while the rest of the questions addressed their perceptions regarding studio classroom environments. The survey was sent to the 500 interior design educators who are members of the IDEC. The study was conducted as an online questionnaire emailed to all (IDEC) members via their e-mail addresses listed in the IDEC website, according to IDEC list of 2000. There were 85 participants who didn't participate in the survey because of undelivered messages. Only 94 out of 415 of the participants responded, 86 of who answered all questions. The responses of the remaining eight members were not considered because they missed some of the critical questions. Survey questions were developed carefully to address the main questions of the study (see full paper). Summary: The results of this analysis support the stability of earlier findings that the physical environment has a direct impact on the satisfaction of the space users. The findings suggest that lighting, noise, glare, air quality, temperature, seats comfort and possibilities of arrangement are all essential environmental features in the achievement of an appropriate pedagogic environment. Likewise, it was found that designated workstations are important part of the teaching/learning process of interior design. In addition, findings of the study suggest that designated workstations should be provided for all students in

all levels; such workstations were believed to be supportive of teaching/learning interior design. Likewise, it emerges from this study that lighting is the most important feature. It may be true that because the process of learning interior design dealing with lines, shapes, and colors, require proper lighting is required.

GOALS IN THE DESIGN STUDIO: THE ESSENTIAL MOTIVE TO LEARN

Powers, Matt (Florida A&M University) [Paper]

In the design studio, students learn to design through the experience of completing design projects. Design projects vary in length, complexity, abstraction, requirements, and subject matter. The studio professor typically uses the student's overall performance on a design project to assess student learning and achievement. These assessments consistently reveal that student learning and achievement ranges from high to low. Even though professors expect student achievement to range from high to low, many professors find it difficult to explain what causes the difference between those that learned much and those that learned little. Attempts to explain learning and achievement are usually limited to observational descriptions of a student's motivation, dedication, intelligence, and other such factors. While broadly informative, these types of descriptions encourage the student and professor to briefly reflect upon a possible reason for the behavior and then move on; they are too vague to allow for meaningful interventions. These descriptions beg the question, "How can we explain the differences in achievement and learning between students in landscape architecture design studios? During the last 30 years, numerous empirical studies focusing on the psychological processes underlying student learning and performance have led to a growing interest in the concept of self-regulated learning (SRL) (Schunk and Zimmerman, 1994). These studies provide evidence suggesting that greater, more sophisticated SRL leads to more meaningful learning and achievement (Zimmerman, 1989). While

conceptualizations of SRL vary, most researchers agree that SRL involves learners: a) having a purpose or goal, b) employing goal-directed actions, c) monitoring their own behaviors, and d) adjusting their learning to ensure success (Schunk, 1996). Goals are the foundation of self-regulation in that we attempt to regulate our actions, thoughts, and behaviors to achieve some desired outcome. Goals provide the standards or reference criteria against which progress is monitored and abilities are judged (Barone, Maddux, and Snyder, 1997). This paper uses data from the author’s post graduate research to demonstrate the influence of self-regulated learning and goal use on student achievement in order to develop strategies for enhancing learning processes in design studio settings. Data, in the form of interviews with landscape architecture design students, as well as early results from applying research findings in design studio settings support the claim that achievement and learning is strongly dependant upon student goal-use as a function of self-regulation. Those attending will have access to a framework that they can use to foster goal use and student self-regulation in their own studios.

Keywords: landscape architecture, pedagogy, cognition, qualitative methods, academic

References

Barone, D. J., Maddux, E. & Snyder, C.R. (1997). *Social Cognitive Psychology: History and Current Domains*. N.Y.: Plenum.

Schunk, D. H. (1996). *Self-evaluation and self-regulated learning*. ERIC DOC ED403233, U.S. Indiana.

Schunk, D. H. & Zimmerman, B. J. (1994). *Self-Regulation of Learning and Performance: Issues and Educational Applications*. Lawrence Erlbaum Associates, Publishers: Hillsdale, New Jersey.

Zimmerman, B. 1989. A Social Cognitive View of Self-regulated Academic Learning. *Journal of Educational Psychology* 81: 329–339.

INTUITIVE AND SENSATE DESIGNERS IN A COLLABORATIVE STUDIO

Sherrod, Alice; Wilson, JoAnn; White, John; and Amor, Cherif (Texas Tech University) [Paper]

In a collaborative studio containing students from architecture, interior design, and landscape architecture, the Myers-Briggs Type Inventory (MBTI) was administered on the first day of class. The MBTI, based on the work of Swiss psychiatrist Carl Jung, is a personality inventory that measures the cognitive characteristics that produce ‘personality.’ Individuals who take the MBTI receive a four-letter designation that describes their personality in terms of preferences for one of each of four paired opposites: Extraversion (E) – Introversion (I); Intuition (N) – Sensation (S); Thinking (T) – Feeling (F); and Judging (J) – Perception (P). For example, an INTJ prefers using his/her Introversion, Intuition, Thinking, and Judging functions over their opposites. Teams for Project One were created to contain a balanced mix of members high in either Intuition or Sensation, since individuals with these two preferences show the most clear-cut differences in their psychological behavior. Following are brief summaries, adapted from Durling (1996) and Lawrence (1993), of the characteristics possessed by those who prefer either Intuition or Sensation. Intuition-Sensation deals with how a person handles information. Intuitives are concerned with possibilities, ideas, and the future. Sensates are concerned with facts, reality, and information received through their senses right now. Project Two teams were self-selected by students and resulted in three teams that were heavily weighted toward Intuition and one team that was heavily weighted toward Sensation. This created an opportunity to test whether or not a graphic analysis of their design solutions would reveal perceivable differences that could be attributed to their psychological differences. Both types were seen as creative; the issue of interest was in how and in what form their creativity was manifested visually. Intuitive designers were seen as possessing a revolutionary attitude with a divergent process, and a preference for producing

new product(s) and solutions that transform. Sensate Designers were seen as possessing an evolutionary attitude with a convergent process and a preference for producing improved product(s) with solutions that maintain. These psychological characteristics were then translated into visual or graphic characteristics as follows: The Intuitive Designer was expected to have design solutions that were angular and asymmetrically balanced, with unconventional building forms and strongly geometric site plans. Sensate designers were expected to have design solutions that were curvilinear and centrally or radially organized, with conventional building forms and organic site plans. At the conclusion of Project Two, site plans of the four affected teams were analyzed for their graphic characteristics. Preliminary conclusions are that the design solutions in this limited study did show the expected style characteristics for both Intuitive and Sensate types. Further study is needed in order to validate these results.

Keywords: Cognitive, design review, academic, architecture, interior design, landscape architecture, case study, theory

CURRICULUM

A BEGINNING CURRICULUM FOR ENVIRONMENTAL DESIGN STUDENTS

Klein, Melanie and Lewis, Katrina (Kansas State University) [Paper]

The disciplines of architecture, interior architecture and landscape architecture share underlying concepts, vocabularies, processes, and values. Therefore, there is no need for disciplinary boundaries in studio projects for beginning design students. Projects crossing the boundaries between interior and exterior can share fundamental design concerns such as spatial definition, order, and articulation that are essential to a design student’s first year curriculum. This paper ex-

amines the studio shared by beginning environmental design students during their first year at Kansas State University’s College of Architecture, Planning and Design. This studio sequence is founded on Bauhaus pedagogy, with emphasis on ordering and creation of spatial volumes. This paper tests the studio’s contemporary relevance, by reviewing the eight exercises through the ‘lens’ of Inside Outside: Between Architecture and Landscape (1999) by Anita Berrizbeitia and Linda Pollack. The results illustrate the first year studio’s exercises can engage students in linking interior and exterior spaces. Though the studio’s primary readings are from Architecture: Form, Space and Order by Francis Ching, first published in 1979, is still applicable. The authors establish the exercises’ validity by expressing connections to the published work of Inside Outside, 1999.

Keywords: inside outside, Bauhaus, pedagogy, beginning design students

GAUGING THE TRANSDISCIPLINARY QUALITIES AND OUTCOMES OF DOCTORAL TRAINING PROGRAMS: AN INTERNATIONAL COMPARISON

Mitrany, Michal (Technion – Israel Institute of Technology, Israel) [Paper]

The need for cross-disciplinary collaboration in scientific and community problem-solving arenas has been emphasized increasingly in recent years (Thompson-Klein 1996). Researchers and practitioners in the fields of urban planning and environmental design, among others, long have understood that complex problems such as community violence, dysfunctional design, transit-related injuries, sustainable development, brownfields redevelopment and urban change are unlikely to be resolved in the absence of efforts to integrate knowledge drawn from several different disciplines (Roland et al. 2002; Scriven 2003; Stokols et al. 2003b; Schon 1987; Watson 2003). Furthermore, the need for interdisciplinary training in the planning and design profession

has been emphasized by scholars in these fields for some time now and numerous attempts have been made to improve the educational process of planners so that it explicitly incorporates an interdisciplinary perspective (Bradbeer 1999). A key assumption underlying these attempts is that cross-disciplinary research and training provide a stronger basis for achieving scientific and societal advances than unidisciplinary programs. Measuring the essential attributes, let alone the tangible outcomes, of a Tran disciplinary training program is a complicated issue (Stubblefield et al. 1994). Too little is known about ways to quantify the qualities and outcomes of such programs. Field et al. (1994) note the lack of concise assessment criteria tailored to interdisciplinary studies, although there is no shortage of theoretical and practical material on evaluating other types of higher education. Assessment of transdisciplinary projects by traditional means and structures falls short in several respects (Nash et al., 2003). Russell (2000) points out that research across disciplines rarely satisfies the criteria and standards of each of the disciplines involved. Moreover, transdisciplinary research generally creates its own criteria and standards, because of its unique emergent qualities (Thompson-Klein 1996). These qualities are not explicitly taken into account by current assessment strategies. Researchers trying to assess the quality of transdisciplinary research face this challenge, and currently there is no one agreed upon set of measures that has been used to gauge the transdisciplinary qualities of training programs and research products. As a result, it is difficult to compare different transdisciplinary programs and research projects, let alone evaluate their relative quality.

It is necessary to develop reproducible and reliable criteria for identifying the distinctive qualities of cross-disciplinary research and training programs, especially in the field of urban and regional planning. The current study provides an exploratory first step toward that goal. A composite scale designed to measure the transdisciplinary qualities of doctoral dissertations as an important product of one’s intellectual development and graduate training was constructed and administered in the present study (see Mitrany & Stokols 2005 for a description of the

composite scale). Two sets of theses were rated across multiple dimensions of transdisciplinary integration and scope. One set included dissertations completed over a 25-year period by Ph.D. candidates within the Planning, Policy and Design Department in the University of California, Irvine. The other set included theses completed since 1990 in the Urban and Regional Planning Program in the Technion, Israel Institute of Technology. The paper will present the international comparison of the results of the two sets of ratings and examine their implications for the future of transdisciplinary training in the fields of urban planning and environmental design.

Keywords: transdisciplinary research and training, planning education, international comparison

MORAL DESIGN: REFRAMING THE ARGUMENT FOR DESIGN RESEARCH

Nasar, Jack (The Ohio State University) [Paper]

Designers see the world in a fundamentally different way from researchers. Conflicts arise because each group has difficulty understanding the worldview of the other. Conceptual metaphors frame one domain of experience in terms of another. Each group has a different conceptual metaphor underlying its worldview; and this leads each one to view its ideas as simple common sense. As in politics, the reasoning is ultimately based on models of the family. Drawing on the work of Lakoff (2002), this paper discusses some key metaphors in our language. Then it explains the two family-based models: Strict father and nurturing parent. The strict father model is “a traditional nuclear family, with the father having responsibility for supporting and protecting the family as well as the authority to set overall family policy . . . Children must respect and obey their parents (Lakoff, pp 65–66). This model implies something about the right kind of designer. The nurturing parent model is one which focuses on “being cared for and cared about...Children become responsible, self-disciplined, and self-reliant through being cared for and respected...Open, two-

way, mutually respectful communication is crucial... Children need to learn empathy for others, cooperation, and the maintenance of social ties” (pp. 109–110). While the systems differ, both assume that the system will reproduced in the child. This points to the link between the moral analysis and analysis of the worldviews of designers and researchers. In each worldview participants in the building process are a family, the designer or design researcher is a parent, and the building occupants and users are the children. The paper describes some different kinds of designers and researchers within each world view. It describes reasons for choosing the research-based worldview and discusses ways to reframe public discourse in favor of the research-based approach to design. The paper concludes with a discussion of ways of reframing the public discourse to favor research based design.

Keywords: theory/conceptualization, behavior change, attitudes

References

Lakoff, G. (2002). *Moral Politics: How Liberals and Conservatives Think*. Chicago: University of Chicago.

Lakoff, G. (2004) *Don’t Think of an Elephant: Know Your Values and Frame the Debate*. Chelsea Green Publishing Company.

THE PLACE OF ENVIRONMENT & BEHAVIOR STUDIES IN THE REALM OF THE ARCHITECTURAL CURRICULUM

Popov, Lubomir (Bowling Green University, OH) [Paper]

Although long established, Environment & Behavior Studies still resides at the periphery of architectural interests and curricula. Only a small portion of the accredited architectural programs offer courses on architecture and human behavior, facilities programming, and post-occupancy evaluation, and rarely more than one of these. While the architectural curriculum incorporates a number of courses that deal

with the structural and formal aspects of the design object, the functional aspect is typically underrated and underrepresented. Modernist architects proclaim loudly that “form follows function,” but neither they nor their heirs have developed a battery of courses regarding the functional aspect. The goal of this paper is to present arguments in favor of incorporating Environment & Behavior Studies in the architectural curriculum. To achieve this purpose, the author starts with the classical model of architecture as a tripartite phenomenon, which is viewed in terms of structure, form, and function. This vantage point serves as a stepping stone for conceptualizing the problem as well as an illustration of the timeless concern with function. To justify the need for more extensive instruction about functional issues, the author uses one of the models of architecture as artifact. The artifact approach allows us to treat the architectural object as spatial-material morphology that functions in social environment. The spatial morphology and the social environment constitute one whole, an entity, a system. This holistic vision allows for more productive conceptualization of the impact of the social functional environment on architectural morphology. Such a point of view also implies that the analysis of the social functional environment is a prerequisite for understanding the interaction between the architectural object and the social reality, as well as the ensuing relationships. These environment and behavior relationships constitute the basis for developing a form that actually does follow function. In the design process, the social relationships of the architectural object are translated into design requirements and guidelines. From such a perspective, Environment & Behavior Studies can be seen as the vehicle for bringing information and understanding about the specifics of the social milieu of the architectural object, as well as the social implications of the design decisions. This conceptual platform constitutes the foundations of a framework that integrates the social/functional, formal, and structural issues. The framework allows clarifying the nature, function, and placement of Environment & Behavior Studies in the realm of the architectural curriculum. Designers need corresponding courses and training just like

they study structures and design discourse. These positions will guide architectural educators in the development of design curriculum with clear vision regarding the inclusion of courses about the social aspects of architecture, including academic instruction about programming, building evaluation, and design patterns. The present argument goes beyond the recommendation for developing new courses and directs toward infusing the design studio with social knowledge and reasoning. The studio is envisaged as the integrative arena where aspect knowledge is utilized in the process of design decision making.

Keywords: Curriculum development, architectural education, facilities programming, post-occupancy evaluation

TOWARDS A ‘NEW’ LIGHT: EXAMINING THE ROLE OF LIGHTING SOFTWARE IN DESIGN EDUCATION

Sarawgi, Tina (The University of North Carolina at Greensboro) [Paper]

Due to their dynamic and interactive interface, computers are suitable for iterative exploratory design process enabling the study of light in relation to other elements of design. With the maturing of algorithms, lighting simulation software tools today are easy-to-use, reasonably accurate, and are fast gaining acceptance amongst design professionals (Reinhart & Fitz, 2004). Unfortunately, the use of computer applications is largely relegated to producing alluring imagery by ‘painting’ light intuitively or randomly in most interior design and architecture schools. Thus, the results demonstrate very little environmental understanding of the building, lack scientific basis, and are not accurate enough to base design decisions on. A due consideration to lighting in an environment with the help of computer simulation tools could lead to energy-efficient buildings, hence mitigating the ensuing environmental impacts. Most architects believe that the role of university education regarding building performance simulation tools is important,

although their current level of emphasis is insufficient in design education (Mahdavi, Feurer, Redlein, & Suter, 2003). As interior designers or architects are usually the pivot of the design team, bringing in and directing the consultants, they need to have the expertise to co-ordinate the decisions that occur in the design process of energy-efficient environments (Wilde, Voorden, Brouwer, Augenbroe, & Kaan, 2001). Thus, there clearly is a need to determine the reasons for exiguous use of currently available lighting simulation tools, and spread more awareness regarding their capabilities in the academics. The project discussed in this paper addresses this in two ways. First, an online survey is conducted to determine the impact of computers in teaching and learning lighting design in interior design and architecture schools, and identify design educators’ lighting education needs. Second, suitable learning strategies in the form of course modules are proposed that demonstrate the application of fundamental concepts and technical details of lighting to a design project, without being tied to specific application programs. The course modules will be made electronically available as an interactive, self-paced discovery environment in which students can verify concepts and learn procedures to produce photo-metrically accurate lighting simulation to guide their design decisions. The survey results will be shared during the conference presentation. A draft of the online course modules will be presented to the conference audience to receive critique and feedback that could help refine the modules. The specific aim of this project is to emphasize the use of computer technology for environmental design investigation and visualization, as distinct from the more conventional computer graphics-based ‘image making’, within the design curricula. The project responds to the perceived instructional need to include lighting simulation in a design curriculum for improved visual quality, energy efficiency, and thermal comfort. The high interest shown by undergraduate students in the use of digital media, and the growing demand for digital media proficiency in the workplace make this project very timely.

Keywords: lighting, computers, interior design, architecture, curriculum

UNIVERSITY
ENVIRONMENTS

IMPROVING STUDENTS’ ATTITUDES BY ALTERING THE (PHYSICAL) CLASSROOM

Schatz, Sae and Bowers, Clint (University of Central Florida) [Paper]

The purpose of this classroom-building redesign project was to improve undergraduate students’ attitudes toward a certain academic program. This program – only a handful of years old – is in the process of developing a strong curriculum, but, as with many new academic projects, there have been some conflicts. The students reacted to the program’s difficulties with growing resentment, eventually developing a culture-wide attitude problem. Before the intervention, students often complained that the academic program did not adequately prepare them, that the administration did not consider their opinions during decision-making, and that they were not given proper respect. There was also a lack of “community” within the program. To help mitigate these perceptions, we designed a dramatic environmental treatment, including a bold color scheme, murals, and inspirational quotations. We also created numerous “learning posters,” that were both attractive and educational, and we reorganized the layout of faculty offices to create a more logical workflow. Finally, we established two new spaces for student collaboration. The entire design was created and implemented during a three-month period, over summer 2005, and the total budget was \$5,000. Success was evaluated by using a pre-test/post-test quasi-experimental design. Participants in each condition were asked to complete the Classroom Environment Scale (Johnson, Johnson, Kranch, & Zimmerman, 1999), a validated 40-question survey that measures attitudes and perceptions about the social climate of an academic program. Twenty, out of the 40 CES items, showed significant

improvement in the post-test condition. While creating the design, we considered the research on place preference, Attribution Theory, and semiotics. Researchers believe that place preference is partially determined by the environment’s coherence (a sense that objects in the place go together), legibility (the sense that individuals feel safe exploring the place), complexity (the variety within a place, which piques viewers’ interest) and mystery (the sense that the place has more to offer) (see De Young, 1999). Attribution Theory helps explain how people make attributions without sufficient information needed to make evidence-based judgments; it explains how people make causal explanations (see Weiner, 1986). Finally, semiotics is the study of signs and symbols, broadly defined. Strothotte and Strothotte’s (1997) work on semiotics helps clarify the notion of explicit and implicit communication/inferences from visual symbols. Using these techniques, we were able to successfully manage a complex, sensitive problem – quickly and relatively inexpensively.

Keywords: attitude change, academic (university), interior design, quasi-experiment, design project

THE CONFLICTS IN THE DESIGN OF AN AGRICULTURAL CAMPUS IN A CAPITAL CITY

Özdemir, Aydýn (Ankara University, Turkey) [Paper]

This study discusses the challenges of the design of an agricultural faculty campus in a capital city. There is a conflict between the historical background and the expectations and current functions of this campus. There is a basic historical discussion on whether city andagriculture should be separated. Landscape architecture students were challenged to improve the design of this site. Students conducted interviews with the users of the North Campus site in Faculty of Agriculture. During the studio course, the conversations between the students and the faculty were recorded and then evaluated to discuss the conflicts that

students face during the design process. In the early stages of the course, students were asked to develop a design theme based on the results of the questionnaires that they administered. Three groups of users (students, faculty and employees) were asked the same questions in an effort to define the design problems related to this site. The primary issue in collaboration of a fresh design scheme is to learn the necessities of the actual users. However, the location of the campus in the city and the term “agriculture” often result in opposing design themes: village vs. urban, I vs. we, closed to public vs. completely open. This study is an attempt to show the results of these design proposals including the steps followed during the processes of planning and design. Students’ comments and concepts are the primary data for this study. As the result of the content analysis and evaluation of design projects, the conflicts that emerge based on the revitalization of the campus site are discussed. It is assumed that not only did the conflicts shape the design, but also on the other hand, that design formed the conflicts.

Keywords: Campus planning, rural verses urban, design studio cirriculum

**DESIGNING CAMPUS LANDSCAPES THAT
REDUCE HEALTH DISPARITIES: A STUDY
COMPARING STUDENT BICYCLING
CULTURE AND CAMPUS BIKE-ABILITY**

Powers, Matt (Florida A&M University) [Poster]

In the design studio, students learn to design through the experience of completing design projects. Design projects vary in length, complexity, abstraction, requirements, and subject matter. The studio professor typically uses the student’s overall performance on a design project to assess student learning and achievement. These assessments consistently reveal that student learning and achievement ranges from high to low. Even though professors expect student achievement to range from high to low, many professors find it difficult to explain what causes

the difference between those that learned much and those that learned little. Attempts to explain learning and achievement are usually limited to observational descriptions of a student’s motivation, dedication, intelligence, and other such factors. While broadly informative, these types of descriptions encourage the student and professor to briefly reflect upon a possible reason for the behavior and then move on; they are too vague to allow for meaningful interventions. These descriptions beg the question, “How can we explain the differences in achievement and learning between students in landscape architecture design studios? During the last 30 years, numerous empirical studies focusing on the psychological processes underlying student learning and performance have led to a growing interest in the concept of self-regulated learning (SRL) (Schunk and Zimmerman, 1994). These studies provide evidence suggesting that greater, more sophisticated SRL leads to more meaningful learning and achievement (Zimmerman, 1989). While conceptualizations of SRL vary, most researchers agree that SRL involves learners: a) having a purpose or goal, b) employing goal-directed actions, c) monitoring their own behaviors, and d) adjusting their learning to ensure success (Schunk, 1996). Goals are the foundation of self-regulation in that we attempt to regulate our actions, thoughts, and behaviors to achieve some desired outcome. Goals provide the standards or reference criteria against which progress is monitored and abilities are judged (Barone, Maddux, and Snyder, 1997). This paper uses data from the author’s post graduate research to demonstrate the influence of self-regulated learning and goal use on student achievement in order to develop strategies for enhancing learning processes in design studio settings. Data, in the form of interviews with landscape architecture design students, as well as early results from applying research findings in design studio settings support the claim that achievement and learning is strongly dependant upon student goal-use as a function of self-regulation. Those attending will have access to a framework that they can use to foster goal use and student self-regulation in their own studios.

Keywords: landscape architecture, pedagogy, cognition, qualitative methods, academic

References

Barone, D. J., Maddux, E. & Snyder, C.R. (1997). Social Cognitive Psychology: History and Current Domains. N.Y.: Plenum.

Schunk, D. H. (1996). Self-evaluation and self-regulated learning. ERIC DOC ED403233, U.S. Indiana.

Schunk, D. H. & Zimmerman, B. J. (1994). Self-Regulation of Learning and Performance: Issues and Educational Applications. Lawrence Erlbaum Associates, Publishers: Hillsdale, New Jersey.

Zimmerman, B. 1989. A Social Cognitive View of Self-regulated Academic Learning.” Journal of Educational Psychology 81: 329–339.

**PATTERNS OF PEDESTRIAN FLOWS AND
STATIC OCCUPANCY OF THE DIAG OF
UNIVERSITY OF MICHIGAN, CITY OF
ANN ARBOR, EXAMINED BY SPACE
SYNTAX ANALYSIS**

Chiang, Chien-Chi (University of Michigan) [Poster]

Space syntax analysis has been developed to examine the relationship between the patterns of space use in public spaces and the morphological properties of urban grids in which these spaces are embedded in the last two decades. The growth of City of Ann Arbor has accompanied with the establishment and expansion of University of Michigan (UM) since 19th century. Due to allocating UM central campus in the proximity of the geographical center of City of Ann Arbor, this growth has followed the trend of strong downtown centrality. The Diag of UM is the center square of UM central campus. This advantage of morphological properties well embedded in the urban grid and campus layout has resulted that the Diag has the potential to be an important public square which incorporates both campus and urban uses. The level of pedestrian flows, features of isovists and isovist fields, and provision of sitting areas have been sug-

gested to influence the level of static occupancy. In this study, space syntax analysis is utilized to examine the effects of these spatial properties on the pattern of static occupancy (i.e., sitting or standing) in the Diag. The measures of axial line analysis (e.g., connectivity, global integration, and local integration) are estimated by Axman program for evaluating the level of natural movement. The measures of isovist analysis (e.g. decentralized integration, neighborhood size, and clustering coefficients) are estimated by Depth map program for evaluating visibility properties. Due to the fine scale of analysis, axial line analysis was based on the footpath system in the Diag and its surrounding area, and flowerbeds, planting, and formal seats were identified as the barriers of people s movement. In Depth map analysis, the buildings and high walls were identified as visual barriers. The snapshot technique, observation, and informal interview are used to understand the distribution and level of pedestrian flows and static activities. Finally, the investigation of spatial use was used to examine the accountability of morphological features and of landscape design (e.g., footpath design, and the location of flowerbeds and benches). Different patterns of space use between campus users and visitors on weekend and weekdays are also analyzed to examine the space function of the Diag. The results and conclusions of this study are (1) that multiplicity of visual connections to the neighboring environments and some level of privacy, facing the pedestrian flow, and provision of sitting areas are the primary factors to influence static occupancy; (2) landscape design (the layout of flowerbeds, planting, street furniture) should consider its barrier effects on natural movement; (3) the northwest corner of the Diag can serve as a public square of City of Ann Arbor to increase the interaction between visitors and campus users, and the identity of college town. This preliminary study demonstrates that space syntax can be a useful tool for exploring space use and space function on a local scale. However, observation method is required to examine the accountability of the effects of morphological features on space use and space function.

Keywords: movement, spatial behavior, academic (schools, universities), space syntax, landscape architecture

POST-OCCUPANCY EVALUATION OF COLOR CHOICES AND THE FAVORED COLOR IMAGE OF UNIVERSITY CLASSROOMS

Hong, Chunki; Yoon, Aram; and Ha, Mikyoungh
(Yonsei University, Seoul, Korea) [Poster]

Due to improvement in the quality of life levels, quality requirements for space are becoming more demanding. Brought up under these circumstances, students are also demanding more of their classroom spaces, but their high expectations are unlikely to be satisfied in the relatively backward buildings of universities today. The color schemes of today s classrooms are very coarse, typically expressed in a very un-thoughtful manner. This research provides information on color schemes in classrooms for educational environments, through evaluating interior color environments of university classrooms. The satisfaction of color environment shows that students are much more in favor of color schemes used in reformed classrooms than used in previous classrooms. When evaluating the environment based on color combination of interior components, two or more colors in a classroom led to different degrees of color satisfaction of not only the specific component, but also of the whole color environment and other interior components. Therefore, the floor color may differentiate the satisfaction degree of the whole color environment, and also the satisfaction degree of the other colors of objects which take up a fairly large space, such as the ceiling, walls and the desk. In other words, a color in a space may not be judged within its own limitations, but also should be recognized with other surrounding colors, since it will be evaluated in such a combination. The comments made on the spatial atmosphere in the present classroom shows that evaluations of atmosphere in the classrooms are generally positive. Connecting this atmosphere with the color schemes of interior components in classrooms, we now understand that color scheme of the floor is a key factor in evaluating the interior image of the classroom. Moreover, when a change is made in the color scheme of the space, it may be regarded as just another factor in interior space, not illustrative of the color satisfaction of the whole space.

Therefore, upon planning color schemes, considerations of developing an adequate atmosphere of the classrooms should be considered. The results of this research show that the color environment reformation of the classrooms has obtained highly positive effects, and that it is necessary to reform color environments in existing university classrooms. Through this POE research, changes in satisfaction levels and problems in regards to color environments of the classrooms were easily understood, and results earned through continuous research could be reflected in classroom reformation works.

Keywords: Color, university, classroom, indoor environment, POE

STRATEGIES FOR SUSTAINABLE CAMPUS DESIGN AND PLANNING

Organizer: Barnes, Richard (Randolph-Macon Woman’s College, VA) Presenters: Barnes, Rick (Randolph-Macon Woman’s College, VA); Bain, Brodie (Mithun Architects, WA); Edelstein, Michael (Ramapo College, NJ); Janda, Katie (Oberlin College, OH); Rottle, Nancy (University of Washington, WA); and Warren, Karin (Randolph-Macon Woman’s College, VA) [Pre-Conference Intensive]

In recent years the movement toward more environmentally sustainable design and facilities management on college campuses has gained considerable momentum. Many colleges and universities are looking for ways to decrease energy consumption and resource use and promote a more environmentally responsible campus culture. Because of their scale and mission, educational institutions can be good models for development of environmentally sustainable communities.

Objectives: This half-day intensive will provide a forum for exchange of information and strategies on promoting sustainable design and planning at educational institutions. It is a continuation and expansion of workshops at recent EDRA conferences on sustainable campus design and planning. The intended audience is faculty, facilities managers, and designers involved in the design and planning of educational institutions.

Description of planned activities: In the first half of the intensive, presenters will briefly describe sustainability initiatives at their institutions. Presentations include (a) description of green building technologies at Oberlin College, (b) a case study of involving students in the LEED certification process for a sports and activity center, (c) methods of promoting undergraduates’ involvement with sustainability through journals and design projects. (d) comparison of environmental learning center campuses, focusing on sustainable sites, buildings and operations, (e) strategies for broadening sustainability throughout the college (f) a case study of a campus-community sustainability partnership for composting and biodiesel production, and (g) inclusion of sustainability in the campus planning process. Presentations will focus on the successes and challenges that the cases illustrate and will attempt to draw lessons for other institutions. The second half of the intensive will be devoted to a facilitated discussion and sharing of strategies for promoting sustainable campuses. Attendees will be encouraged to describe activities and projects in their own institutions and organizations, and to share tools and techniques that have been successful in promoting more environmentally sustainable communities.

Keywords: sustainability; teaching; academic (schools, universities); architecture; city planning

RESEARCH METHODS

DATA GATHERING BY ENVIRONMENT-BEHAVIOR PROFESSIONALS: A WORKING GROUP TO EXPLORE INNOVATIVE TECHNIQUES & INSTRUMENTS

Organizers: Augustin, Sally (PlaceCoach, Los Angeles, CA) and McCoy, Janetta (Washington State University) [Workshop/Working Group]

Architectural programmers, academic researchers, designers, and others who need to know more about how humans interact with their physical environ-

ments gather information using various tools. New information gathering techniques and instruments are continually being created and existing ones are regularly revamped in useful ways. The purpose of this session is to involve all interested parties – practitioners in the field, researchers, teachers of environment-behavior courses, students, etc. – in a discussion of the best new data collection tools available to gauge human responses to particular environments. In this unstructured session, individuals will be invited to share new techniques and instruments that they have found useful for learning about human/environment interactions. These might range from new observation protocols to a set of insightful survey questions to virtual reality simulations to Internet based focus groups. The techniques and instruments discussed will be determined by the tools that attendees choose to share.

Keywords: research methodology

VALUE THROUGH CONFLICT: BRINGING RESEARCH INTO OBJECTIVE ANALYSIS

Organizer: Keable, Ellen (Jacobs Advance Planning Group, Buffalo, NY) Presenters: Keable, Ellen (Jacobs Advance Planning Group, Buffalo, NY); Putterman, Joel (Jacobs Advance Planning Group, Atlanta, GA); Rader, Jeff (Jacobs Advance Planning Group, Atlanta, GA); Ninassi, Carlo, (Jacobs Advance Planning Group, Arlington, VA); and Scarbrough, Tim (Jacobs Advance Planning Group, Atlanta, GA) [Symposium]

Conflict often generates the need for objective analysis, forming opportunities for design research. Our practice is shaped by conflicts between business strategies and facilities plans, between community needs and infrastructure, and between stakeholders. We, here at Jacobs Advance Planning Group, deliver value to our clients by defining these problems before solutions, with research at scales from furniture to community planning. This workshop will show three case studies in which research helped to define and address conflict, bringing objectivity and rigor to

pre-design and planning processes. This symposium focuses upon environment-behavior research applications and the influence of this research upon design and the built environment in three arenas:

- a) global office space standards (see Keable abstract in the workplace section);
- b) transportation planning (see Putterman and Rader abstract in the urban planning section); and
- c) real estate portfolios and facility management decision-making (see Ninassi abstract in the programming and post-occupancy evaluation section)

Keywords: Professional practice; research application, workplace/office; transportation; urban development; GIS analysis

WHAT ARE THE BOUNDARIES OF
ARCHITECTURE?

Dülgeroglu-Yüksel, Yurdanur, (Istanbul Technical University, Turkey) [Poster]

New and creative ways of seeing and conceptualizing the environment and designing accordingly is possible through participation, discussion and integration. This presentation inquires into the knowledge span and boundaries of the field of Architecture in the last almost half century. This is important in order to define the roles of the disciplines in the society and in the scientific research. The boundaries will be picked up by the overlaps of architecture with sociology, with psychology, with ecology, with science, with anthropology, with geometry, with management? How has it changed within the last 45 years? What can be expected in the future? What is and what should be the methodology in architectural research? Especially when it typically borrows from the social sciences, through observation and participation; from hard sciences through falsification, phenomenology, verification, etc. To which is architecture closer now as a field – a social science or a hard science? How has the research topics changed, epistemologically and ontologically?

- I hypothesize the following change in topics:
- a) Move from post-occupancy evaluations to action research (not “after” but “before”)
 - b) Move from more exploratory into more exploratory.(issues have changed character)
 - c) Moving from more the case study into more theory (from more pragmatic into more grand theory)
 - d) Move from more certain into more uncertain (with the changes in even the hard sciences)
 - e) Move from more consistent into inconsistent (as the nature of human beings suggests)
 - f) Move from more mundane topics into more contrasting issues (the extreme opposites for the reason of creating tension and challenge)
 - g) Move from mono-disciplinary into multi-disciplinary (multiple problems requiring multiple solutions)
 - h) Move from more quantitative into more qualitative (quality problem has supersceded the countable ones)
 - i) Move from more local into more global (EU has urged the research on social housing to take place jointly by many countries in Europe, Germany, France, Spain, etc.)
 - j) Move from more experimental into more experiential (as real life requires)
 - k) Move from behavioral maps into computer-simulated documentation (with advances being made in computer technology)

All of the changes mentioned above, have to be related to the changing role of architects in the society, moving from the customer and user into decision-maker. In the complexity of the 21st century, livable alternative built environments can be generated only if and when architects adopt an integrated approach, because architects are challenged by pollution, increased population, crowding, and traffic in the contemporary city. The know-how on the other hand, is both their tools and their enemies. The reconciliation is in deeper understanding of the capacities of the field. They are not alone but they are to be connected constantly and continuously to the other specialists in their search for resolutions to physical design problems, whose nature has gone beyond the architecture.

ENVIRONMENTAL GERONTOLOGY

ALMOST HOME: EXPLORING
CULTURE CHANGE IN LONG-TERM
CARE FACILITIES

Organizer: Chapin, Meldrena
(University of Wisconsin – Milwaukee)
[Pre-Conference Intensive]

Nursing homes all over the country are casting off their institutional nature and working towards creating home. This emerging change is due to a new phase of cultural, organizational, and physical evolution in long-term care, the Culture Change Movement. Spear-headed by the Pioneer Network, the Culture Change Movement recognizes the need to create a *place* where elders can *live* comfortably and receive needed care, rather than simply creating a building where medical services are provided. Culture change within long-term care is the process of transforming a facility from operating in an institutional medical model manner to operating under a holistic philosophy in a resident-centered care manner focused upon fulfilling individual resident’s needs, wants, and wishes. The goal of this transformation is to create a setting where elders can *live* to their fullest, enjoying multiple social, psychological, and spiritual aspects of life and meaningful connections with others while receiving needed care.

Join us for an intensive focused on culture change in long-term care. Presentations include an overview of culture change, processes used to create culture change, and the connection between placemaking and long-term care facility transformation. The afternoon will include two presentations – *The Role of Placemaking in Long-term Care Culture Change* by Meldrena Chapin of the University of Wisconsin – Milwaukee) and *Environment, Action Research, and Culture Change* by Lyn Geboy of Kahler Slater Architects, Inc. of Milwaukee WI. The afternoon concludes with a viewing of *Almost Home* the PBS documentary

focusing on culture change at St. John’s on the Lake a long-term care facility in Milwaukee, Wisconsin. Lisa D. Gildehaus co-producer of *Almost Home* and Nancy Tischer, Staff Development Director at St. John’s on the Lake will present their perspectives on culture change, St. John’s approach to transformation and the making of this premier documentary.

Almost Home is a stunningly intimate feature-length documentary following the stories of residents, families and workers in a Midwestern nursing home pursuing culture change. The film illustrates not only their struggle with the personal challenges of aging but also the challenges that come with transforming their century-old hospital-like institution into a true home. Almost Home is a co-production of 371 Productions and Wisconsin Public Television, produced in association with ITVS, with funding provided by the Helen Bader Foundation; The Jacob and Valeria Langeloth Foundation; The Retirement Research Foundation; the Corporation for Public Broadcasting; The Faye McBeath Foundation; and support from University of Wisconsin – Milwaukee’s Peck School of the Arts and Center on Age and Community. EDRA is pleased to have Almost Home, and its supporters as a partner in sponsoring this half-day pre-conference intensive.

AMERICAN INSTITUTE OF ARCHITECT’S
DESIGN FOR AGING REVIEW:
OVERVIEWS AND TRENDS

Organizer: Rhode, Jane (JSR Associates, Ellicott City, MD) [Symposium]

Through its biennial juried design competition, Design for Aging Review, the American Institute of Architects provides a vehicle that both highlights the best architecture for the aging and provides a vehicle

to broadly share the emerging trends within this focused design area. The competition is collaborative with the American Association of Homes and Services for the Aging and the jury consists of both architects and care providers. It is an established criterion for the competition that the environments represent that collaboration and that the care provider takes an active role in the design process. This presentation highlights the 8th cycle of the Design for Aging Review, completed in the fall of 2005. As such it is indicative of emerging trends within the design and care provision professions, demonstrative of a changing market and demographic for these environments and a pretense that foreshadows trends which may become broadly accepted in the future. In addition, the jury member presenters will discuss both the good and not-so-good elements of the submittals that continue to appear or that are innovative and refreshing in their appearance. The six Award of Merit winners within the 8th cycle will be discussed in depth, sharing with the audience the reasons for their selection and elevation to award. Innovation in design, care provision approach and financing are all a part of this tour of the best architecture and environments for the aging in the United States, conducted by the individuals who judged them to be so.

Keywords: design for aging, post-occupancy evaluation, research-informed design

**ASSISTIVE TECHNOLOGY FOR SENIORS:
COMPARING ONLINE AND CLASSROOM
TEACHING FORMATS**

Calkins, Margaret
(I.D.E.A.S., Kirtland, OH) [Paper]

This project developed a course on hearing impairments and assistive technologies to mitigate hearing problems, given in both an online and classroom format. Pre and post-tests and were used to assess both knowledge about assistive technologies and degree of difficulty hearing problems caused seniors in everyday situations. Seniors (n=146) from

3 states were recruited to take either the online course or the classroom course. Two sets of analyses were performed to assess the effectiveness of the course. First, cross tabs and paired t-tests were used to identify whether or not participants experienced fewer hearing problems and/or made use of course content after completing the course. Before the course 94 participants (70%) were classified as having significant hearing problems and after the course only 57 participants (54%) were classified as having significant hearing problems (p< 0.004). Participants with significant hearing problems reported fewer difficulties after having taken the course. Results also suggest the course was most effective at encouraging the purchase or use of AL devices, helping participants to hear better overall, and helping to make some form of improvement in participants' lives. Second, a paired t-test was used to determine if there was any improvement in test scores before and after the course was taken. This analysis also included the use of Tukey's HSD to determine if differences existed between the on-line and classroom courses. Participants averaged 2.34 more correct answers on the post test than the pretest (p<.001), suggesting that participants learned during the course. Tukey's HSD were calculated with four fixed factor levels determined by course format (on-line or classroom) and exam (pretest or posttest), to determine if learning differed between the on-line and classroom courses. Average scores increased by 3.15 for those taking the on-line version and 2.37 for those taking the classroom version, and both of these increases were significant at the 0.001 level. Also of interest is that the online scores on the posttest were higher by 1.64 on average than the classroom scores on the posttest. This difference is significant at the 0.041 level, but may be due to the fact that only 10 of the 19 on-line participants actually took the posttest compared to 125 of the 126 classroom participants. While the results are highly positive and show little differences between the two formats, recruiting seniors to take the online version was extremely difficult. Throughout the project, the older adults who participated communicated to us that they preferred to attend a class when receiving large amounts of

health related information, but use the Internet when searching for smaller amounts of very specific information. Thus, while online learning may be effective for seniors, a structured course that requires a person to sequentially go through a large amount of information may be less appealing than being able to access a health information website to learn just what is of interest. Go to www.stay-independent.com to see the revised health information website.

Keywords: elderly, housing, experiment, online learning

**ATTITUDES CONCERNING THE ROLE OF
TECHNOLOGY FOR HEALTHY AGING**

Steggell, Carmen D.; Lee, Megan E.; & Yamamoto, Toshiko (Oregon State University) [Paper]

Latest Census figures project that the number of people in the 65-and-over population will grow from 35 million to 72 million in the next quarter century. Increased life expectancy means that a larger segment of this population is over age 85. Further, the vast majority of older adults choose to "age in place" (AARP, 2000). Technological advancements have great potential to extend the time elders can remain in their own homes, enhance quality of life, and alleviate the pressures of caregivers. Many of the technologies that are needed already exist and many more are on the horizon. However, there have been few empirical studies that have examined the technology needs and preferences of elders and their caregivers. The purpose of this study was to explore attitudes, opinions, and preferences of elders and their caregivers concerning the use of technology to support and extend aging in place. The study utilized a series of focus groups representing two major groups people age 75 or older and people who are caregivers to people age 75 or older. Cognitively intact participants representing the senior population were recruited from three living situations: a) residents of a high-tech assisted living center; b) residents of a conventional independent living center; and c) people living in their own homes. Participants

representing caregivers were recruited from four sources: a) professional caregivers employed at a high-tech assisted living center; b) professional caregivers employed by a conventional independent living center; c) professional caregivers employed by a home health agency; and d) family caregivers. Two scenarios were presented as discussion stimuli to help participants understand the potential for the role of sophisticated technologies in the areas of communication and monitoring technologies (Dishman, 2003; Dishman, Matthews, & Dunbar-Jacob, 2003). Findings suggest that elders' perceptions of the potential for technology to improve their lives are related to education level and familiarity with personal computers. Privacy issues are of great concern, but some older adults were willing to trade some privacy for the ability to remain in their homes for a longer period of time. Overall, participants wanted to maintain social contacts, family interaction, and individual independence and were interested in learning more about technologies that could help. An important theme resulting from this study is the crucial need for more investigation into the attitudes and perceptions of people from rural areas and from different cultural and ethnic backgrounds. Cultural norms, language barriers, and physical isolation are some of the issues that must be addressed (Angel & Angel, 1997). Successful implementation of technologies that may extend and enhance aging in place is dependent upon a solid foundation of understanding of the social context and key issues of the users (Charness & Schaie, 2003).

Keywords: elderly, technology, design for aging, aging in place, housing

**CREATING THE LEARNING, SERVING
AND CONNECTING COMMUNITY: A
BROWNFIELD STUDY**

Organizer: Tipton, Glenn (CSD Architecture, MD)
[Symposium]

The subject of brownfield redevelopment is gaining long overdue national attention. Cities around

the nation, particularly those in the Northeast and Midwest, are struggling to regain their once prosperous urban vitality. Their urban landscape has suffered decades of neglect as housing, commerce, and industry have fled to the suburbs. In recent years, as the benefits of the concepts of “Smart Growth”, “Sustainability”, and even “New Urbanism” have begun to be recognized, the underutilized, abandoned former industrial sites in urban cores are seen as fertile grounds for redevelopment. Often these sites are waterfront locations due to the ease of maritime delivery of raw materials and/or shipment of finished goods in their former industrial life. There are many potential catalysts for such Brownfield reclamations: multiuse residential and commercial developments lead the list. However, an unlikely new development type is beginning to emerge: the Continuing Care Retirement Community (CCRC). This proposed session would provide an insight to two case studies of Brownfield Urban Waterfront Redevelopment, initiated by the potential demand for a CCRC. This tale of two cities is of Norfolk, Virginia, and Oshkosh, Wisconsin. In Norfolk, Virginia, a local entrepreneur, Neil Volder, recognized that the City was losing the aging “pillars of the community” to other retirement communities in the surrounding Hampton Roads area. The City shared this concern and suggested the potential redevelopment of “Atlantic City”, the last remaining waterfront site in Norfolk, and the only remaining large parcel in the entire City on which to build. But it was literally acres of abandoned warehouses and dilapidated piers and wharfs. Neil realized the intrinsic value of the site, formed a not-for-profit sponsor of the proposed CCRC, convinced the City to “participate” through infrastructure improvements, and helped the City create a site-wide master plan through a ULI charette. The first of many projects to come was the CCRC, Harbor’s Edge, a 150-unit, 16-story project which sold out in record time, proving the viability of the City’s and Neil’s convictions. Glen Tipton, FAIA, Senior Vice President with CSD Architects, of Baltimore and Dallas, the architects who designed Harbor’s Edge, will present this remarkable story. Glen will also be joined in this presentation by Gerald Weisman, AIA, Director

of Architecture for the University of Wisconsin, in telling the following story of the “Living, Learning, Serving” Community proposal for another waterfront Brownfield site in Oshkosh, Wisconsin.

Keywords: design for aging, brownfield reclamation, sustainability

**ENCOURAGING PHYSICAL ACTIVITY
AMONG RETIREMENT COMMUNITY
RESIDENTS – THE ROLE OF CAMPUS
COMMITMENT, PROGRAMMING,
STAFFING, PROMOTION AND
COMMUNITY TYPE**

Harris-Kojetin, Lauren (Institute for Future of Aging Services, Washington, D.C.); Joseph, Anjali (Georgia Institute of Technology); Zimring, Craig (Georgia Institute of Technology) and Kiefer, Kristen (The National Council on the Aging, Washington, D.C.) [Paper]

Despite the well-established benefits of physical activity for older adults, Americans ages 75 and above are among the most sedentary. A growing literature suggests that the physical environment is an important contributor to physical activity by older people. However, we are unaware of any studies that have assessed the role of organizational and social support for physical activity (e.g., management commitment, channels to promote physical activity, staffing) within retirement communities and their relationship with resident physical activity levels. Continuing care retirement communities (CCRCs), with a median resident age of 84, seem ideal settings for creating physical-activity promoting environments. Some, 660,000 Americans live in retirement communities and this number is likely to rapidly expand as the Baby Boom generation ages (AAHSA, 2005). This paper examines the relationship between social factors and organizational factors such as types of programs available, resident support for physical activity, staffing and management commitment and participation in physical activity

among residents in CCRCs. A social ecological model was used to study the relationships between social and organizational characteristics of retirement communities and resident physical activity behavior. The goals of this inquiry were to:

1. Examine levels of physical activity among residents living in three different settings (independent living or “IL,” assisted living or “AL,” and nursing care or “NC”);
2. Understand the extent of organizational programs and policies as well as resident support in place in CCRCs and other senior housing providers to encourage physical activity among older adults; and,
3. Identify how these organizational and social factors may be related to levels of physical activity participation among older adults in these communities.

Electronic and mail surveys were sent to a systematic random sample of 800 non-profit CCRCs and housing providers who are American Association of Homes and Services for the Aging (AAHSA) members. The overall response rate was 52%. Findings suggest that providing the latest, best quality physical activity programming opportunities can positively affect independent living residents’ physical activity levels, while assisted living and nursing care residents’ physical activity levels may depend more on management being committed to creating a social environment supportive of encouraging physical activity for these residents.

Keywords: physical activity, older adults, continuing care retirement communities, health promotion, organizational resources, social environment

**ENVIRONMENT, ACTION RESEARCH &
CULTURE CHANGE**

Geboy, Lyn (Kahler Slater, Milwaukee, WI) [Paper]

Although the variety of culture change approaches in long-term care is diverse (i.e. Eden Alternative, the Pioneer movement, regenerative care, person-centered care), the role of the physical setting as a change resource has been generally overlooked. In this presentation, the author describes some of the findings of a 2 ½

year action research (applied research/mixed methods) project which began as a modest architectural renovation project and ultimately emerged as a full-fledged organizational transformation to a new model of person-centered care. The project was theoretically framed by Weisman’s (2001) systemic Model of Place, which conceptualizes place as the product of three components – people, program and the physical setting – and Lawton & Nahemow’s (1973) competence-press model of person-environment interaction and fit, which is contextualized within the contemporary realm of long-term care by Kitwood’s (1997) socio-psychological theory of personhood in dementia and person-centered care. While the project as a whole involved the development and implementation of change activities in all three place components of people, program and the physical setting, particular emphasis in this presentation will be given to describing a scheme for implementing change in the physical setting. Research findings provide support for the author’s systemic claim that culture change must incorporate the physical environment if it is to be truly achieved.

Keywords: culture change, adult day care, action research

**EXPLORATION OF OLDER PEOPLE’S
IMMEDIATE ENVIRONMENTS AND
THEIR WELL-BEING**

Rodiek, Susan (Texas A&M University) [Paper]

Recent research demonstrates a strong link between the qualities of neighborhood environments and the health of older adults. The studies presented here examine nearby environments at the neighborhood and the facility levels of scale, and explore health-related issues such as physical activity and social interaction. In these studies and in the literature, what types of supportive policies and interventions appear to have the greatest impact, and what outcomes are associated with greater overall improvements in well-being? Questions as well as answers may point the way to further research on this important topic.

**GROWING OLDER IN SUBURBS:
TERRITORIAL MOBILITY STRATEGIES
ACROSS THREE AGE GROUPS**

Lord, Sebastien (Universite Laval, Quebec) [Paper]

Elderly suburbanites want to age in their house and neighborhood, despite an eventually problematic car dependency. Rather than moving a more appropriate setting (adapted living or urban districts), they adapt to their residential situation as limitation problems occur. Maintaining one’s daily territorial mobility is a major stake for a positive residential experience, in particular for those elders limited in their autonomy. This paper compares the territorial mobility and associated meanings of suburbanites aged between 55 and 82 years (n=102) in the Quebec metropolitan area (in Canada). Data collected from 3 different aged groups (55–64, 65–74 and over 75 years) through in-depth interviews in 1999 are compared. This analysis constitutes a first step toward a longitudinal study on the evolution of the ties between residential and territorial daily mobility in an aging process. By mixing quantitative, qualitative and spatial analyses, the transformation of territorial practices and experiences of home are explored. Results indicate that factors contributing to elderly desire to age at home go beyond the emotional relationship to their house and neighborhood. By gradually adapting their physical environment and lifestyles, as well as their mobility habits and home representations, older suburbanites make the implicit choice of staying in suburbs, without truly entering a decision-making process. Individual needs, environmental context, stage life cycle and mobility habits result differentiated adaptation strategies. Available resources (financial, social and societal) along with the dominant ideology of suburban home justify residential aspirations for aging in place and make them possible to sustain. When adaptation is not possible, a relocation, desired or not, then becomes inevitable.

Keywords: mobility, aging in place, suburbs, adaptation strategy, meanings of home, meanings of mobility

INCLUSIVE DESIGN – LAYERING INFLUENCES WITH SENIOR CITIZENS FOR A MORE DEMOCRATIC CREATIVE PROCESS

Bergeron, Gabriel (Boston Architectural Center/ Miller Boehm Architects, Boston, MA) [Poster]

The interests of the individual frequently collide with public concern. This is especially clear in design fields – where individual creations are usually faced with public scrutiny. The community review process is a poignant example of how individual desires and community desires can push against each other with varied results. The focus of this study is the development of new methods for layering together individual and community interests. It is, in essence, a push towards a more democratic design process. When we approach design, we are faced with decisions regarding what elements will inspire and guide the project. A major push of this study was to let this inspiration come from the inhabitants. They became included in every phase of the design process in a raw manner – not just providing choices between products, but engaging in the development of creative ideas about what the building could become. The framework for this study was a community design with an aging population in Westford, Massachusetts. Eight inclusive design seminars were held with 25–30 Westford seniors to develop schematic ideas for a new Senior Community Center. Each seminar built upon the previous one and ranged in scope from highly structured individual activities to open ended group discussions. Along the way, many discoveries came to light regarding the concerns of older adults, local identity, political process, and the nature of design services. Participants were initially consulted to determine potential activities for the new center. The resulting information became the basis for an accumulation of community developed design decisions including: senior concerns, site design, site and building relationships, historical considerations, design concepts, design reviews, building form, material decisions, interior themes, and budget issues. Remarkably, participants became increasingly cooperative as the process progressed. One major factor in the development of a common

vision was the clear indication that people’s ideas were being heard and used in the developing design work. As participants saw their own ideas included they became more and more sympathetic and supportive of the ideas of their fellow participants. The process developed in this exploration builds up design decisions, layer by layer, to include the voices of local inhabitants that will be affected by the project. The inclusiveness of this method brings layers of information together in a cycle of feedback, so that when we arrive at a solid result, it is nearly overflowing with a richness of influence.

Keywords: aesthetics/meaning/assessment, elderly/gerontology, place attachment/place memory, communication/culture, participation

**INTERNATIONAL INNOVATIONS IN
ENVIRONMENTS FOR THE AGING**

Organizer: Green, Mitch (Hillier Worldwide Architecture, NY) [Symposium]

Too often designers of environments for the aging are focused on practices that have long been “acceptable” within their own communities or, at least, within their own countries. This focus often extends to compliance with governmental regulations as a guide for those designs. As designers of environments for the aging, we do ourselves a disservice if we do not study and understand the innovations of other countries and the impact the resulting built environment has on care provision. There are lessons to be learned and to be taken back to our studios that can enhance the environments we are all currently addressing there. These lessons can advance our understanding of the inevitable collaboration between the environment and the care provision. In doing so, they will ultimately enhance the lives of residents and the quality of workplace for staff. Approaches to acuity levels, to the desire of regulators and care givers that the elderly remain in their own home surroundings and to the increase in dementia in the elderly population all point to interesting contrasts as well as areas of common ground that, once studied, shed new light on both our social consideration of the

elderly and our social responsibility for their needs. Having visited and studied several environments for the aging in Sweden, Norway, Japan, China and Australia, the presenters will provide basic background knowledge of the national care provision systems in place in each country and compare their differences with those within the United States. Additionally, the interaction between environment and care provision will be discussed within the context of individual nationalities and their existing and emerging societies and social responsibilities, both perceived and mandated. The presenters all have extensive practical experience within the United States architecture for the elderly design community as well as experience internationally on a smaller scale. Mr. Green has spent several years as both an owner’s representative and a design provider in Japan and the Asian rim. The panel will also present their work on post-occupancy evaluations that were recently conducted on several Scandinavian elderly facilities as well as individual homes in Scandinavia that had been modified in order that the residents could easily function through age-related disabilities.

Keywords: Design for Aging, international approaches, post-occupancy evaluation

**NEIGHBORHOOD ENVIRONMENTS
AND OLDER PEOPLE’S HEALTH AND
OUTDOOR ACTIVITY**

Sugiyama, Takemi and Thompson, Catharine Ward (OPENspace Research Centre, Edinburgh College of Art/Heriot-Watt University) {Paper}

Recent studies have demonstrated a link between the quality of neighborhood environments and older people’s health. However, research so far is not conclusive as to mechanisms through which neighborhood environments affect health in late life. It can be hypothesized that good quality neighborhood environments facilitate outdoor activity such as walking, which in turn is conducive to better health. This presentation will report the results of empirical investigation that tested these hypotheses. The quality of neighborhood

environments was operationalized as a degree to which the environment supports outdoor activity. An instrument to measure the “supportiveness of neighborhood environments” (SNE) was devised based on the concept of personal projects analysis developed by Little (1983). Regression analysis found that SNE was associated with participants’ time spent outdoors, which was a significant predictor of their health status (measured as the number of unhealthy days in the last 30 days). However, analysis also suggested that a direct association existed between SNE and health. The presentation will discuss potential reasons for this direct association. The study is part of an on-going, multidisciplinary research project called I’DGO (Inclusive Design for Getting Outdoors). **Keywords:** neighborhood, older people, health, outdoor activity, walking

OLDER PEOPLE’S IMMEDIATE ENVIRONMENTS AND THEIR WELL-BEING

Organizer: Thompson, Catharine Ward and Sugiyama, Takemi (Edinburgh College of Art/Heriot-Watt University)
Discussant: Rodiek, Susan (Center for Health Systems & Design, Texas A&M University)
Presenters: Joseph, Anjali (College of Architecture, Georgia Institute of Technology); Sixsmith, Andrew (Department of Primary Care, University of Liverpool); Sugiyama, Takemi (OPENspace Research Centre, Edinburgh College of Art/Heriot-Watt University); and Thompson, Catharine Ward (OPENspace Research Centre, Edinburgh College of Art/Heriot-Watt University) [Symposium]

This symposium presents recent research on the role of “immediate environments” (neighborhood, space around the home and within care facilities) in older people’s well-being. Such environments are an important element for older people’s daily lives because they provide people with nearby opportunities to be active, relax or meet with other people. Given the declining functional capabilities of many older people, identifying salient aspects of immediate environ-

ments that have a bearing on their activity, experience and independence is an important research task. The aims of the symposium are to share findings and insights from some of the latest research on enhancing older people’s well-being through policies and design relevant to immediate environments, and to identify future research directions emerging from current studies. Presentations in this symposium will address a range of issues involving different types of immediate environments and various outcome measures (walking, independence, health). The symposium includes the following three presentations. Joseph will present a study on environmental factors that promote walking for older people living in retirement communities. This study found that outdoor walking paths that are accessible, have more destinations and have more types of views along them are used more often for recreational walking. Sixsmith will discuss the larger issue of “ageing in place” that involves not only the physical and social aspects of immediate environments but also the quality of care and support. Although current policies emphasize the benefits of this idea in promoting well-being in late life, the presenter will point out several potential problems that undermine the person’s ability to live independently. Sugiyama and Ward Thompson will report a study that examined the association between the quality of neighborhood environments and older people’s health. Their study indicated that participation in outdoor activity accounted for this association, but it also suggested a direct link between neighborhood environments and health.

Keywords: elderly/gerontology, active living, neighborhood, health, accessibility

POST-OCCUPANCY EVALUATIONS – EVIDENCE BASED DESIGN FOR THE AGING

Organizer: Anderzohn, Jeffery (InVision Architecture) [Symposium]

The American Institute of Architects, through its Design for Aging Knowledge Community has under-

taken an aggressive and ground-breaking initiative that is aimed at collecting, organizing and distributing evidence based design for environments for the aging. This initiative will culminate in the 2006 publication, by John Wiley & Sons, of a book that assembles these post-occupancy evaluations in one single location that is readily available. It is anticipated that this initiative will continue as an ongoing program of both AIA and the Design for Aging Knowledge Community. This presentation by the three authors and editors of the publication will discuss the protocol established for the evaluations, explore the themes that have emerged from the investigative evaluations and share the “lessons learned” that have evolved from the evaluations. Conducted over a period of approximately a year, the post-occupancy evaluations have been conducted by volunteer teams of designers and care providers and offer unique perspectives of the designs that have been juried and selected for publication within the Design for Aging Review. These environments have been chosen as the “best of the best” by a jury of both care providers and architects, but without site visits and only based on data and images provided to the DFAR competition. This initiative answers the question, “does the design really work?” Real-world experiences for evaluation sites will be shared, including staff and resident interviews. Discussion of the important elements of the design that enhanced the residents’ lives and those that were detrimental will shed light on the direction and trends within the design and care provision professions. In addition, attendees will gain knowledge of the POE protocol utilized for the purposes of conducting their own. With an increase in the number of POE’s conducted by the profession, the evidence based knowledge for this important area of design will increase, ultimately resulting in a wide acceptance of design principles that work and that contribute to resident quality of life.

Keywords: Design for Aging, post-occupancy design, elderly/ gerontology

THE THEORY AND REALITY OF “AGEING IN PLACE” POLICIES

Sixsmith, Andrew (Department of Primary Care, University of Liverpool) [Paper]

With improved living conditions, hygiene and health care, more and more people across European Union are living into very old age (EC, 2003) such that present and future populations will live a great deal longer than any previous generation. This increase brings with it dilemmas in health and social care for our ageing population in terms of extending healthy ageing and providing very old people with a good quality of life and opportunities for enjoying a sense of well-being (Tinker et al, 2001). In this respect, the notion of ‘ageing in place’ has become an important issue in redefining health and social care policy for older people in recent years, with some proponents suggesting that ‘staying put’ at home fundamentally and positively contributes to an increase in well-being, independence, social participation and healthy ageing amongst older people (AARP, 2000; Mynatt et al, 2004; Perez et al, 2001). While policies that emphasize “ageing in place” may bring benefits to the older person, there can also be a significant ‘down-side’ on an everyday level (Sixsmith et al, 2005). Home in old age can be a place of intense emotional experiences, frustrations and negative experiences, such as loneliness. There may also be significant deficiencies in the informal support, physical environment of the home and neighbourhood and social network, which undermine the person’s ability to live independently. Moreover, the health and social care provided may be insufficient or inappropriate to supporting the needs of the person. In these kinds of situations, the person may experience long-term malaise and stress and/or traumatic breakdown of their ability to remain independent. At a service level, the emphasis on ageing in place may marginalize residential and nursing home care, leading to a second-rate service and reduced options for clients. The key message here is that policy and practice cannot assume that simply by supporting the basic needs of a person at home will inevitably lead to improved well-being.

WHERE PEOPLE WALK:
ENVIRONMENTAL FACTORS
ASSOCIATED WITH CHOICE OF
WALKING PATHS BY OLDER ADULTS

Joseph, Anjali (College of Architecture, Georgia In-
stitute of Technology) [Paper]

Growing evidence from many different fields sug-
gests that the physical environment plays a signifi-
cant role in shaping physical activity behaviour of
older adults. However, few studies have looked at the
relationship between building and site level factors
and active living among older adults. The purpose of
this study was to identify environmental character-
istics of walking paths in continuing care retirement
communities that may be associated with where
older residents choose to walk for recreation or to
get to a destination. Case studies were conducted
at three continuing care retirement community
campuses. Methods used included path assessment,
resident questionnaires and morphological analysis
of building and site plans. Results from the study
indicate that outdoor paths are preferred over indoor
paths for recreation. For recreational walking, high
use paths tend to be longer, more accessible from all
other paths in the community, have more destina-
tions along them and more types of views can be seen
from them. For getting to destinations, indoor paths
are used more often than outdoor paths. Paths that
are used often for getting to destinations tend to have
more amenities and destinations along them. Further,
the presence of specific destinations such as activity
related areas along paths was associated with their
being high use paths.

Keywords: Older adults, physical activity, retire-
ment communities, path design

DEMENTIA/DEMENTIA
SPECIAL CARE UNITS

CREATING A HOMELIKE ENVIRONMENT
FOR GROUP LIVING AMONG
DEMENTIA INDIVIDUALS BASED ON
ENVIRONMENT-BEHAVIOR STUDIES

Masako, Koyama (Kogakuin University, Japan);
Tetsuya, Akagi (Kogakuin University, Japan)
and Kei, Adachi (Wakayama University, Japan)
[Poster]

Recently, the importance of homelike environments
has emerged as a major priority for those elders with
dementia living in group settings such as nursing
homes. It is thought that living environments with
homelike environments offers persons with dementia
beneficial effects such as peaceful of the mind, se-
curity, and plays a large role in the improvement of
quality of life. However, the kinds of environmental
factors which concretely create homelike environ-
ments are not clearly evident in the literature on living
environments of persons with dementia.

The purpose of this study is to clarify the
environmental factors which create homelike
environments for persons with dementia living in
group settings based on an environment-behavior
study. Homelike can have various meanings. Within
this study homelike environments were defined as the
following: a) more similar in atmosphere to the home
in which persons with dementia had lived previously
and/or b) the continuance of life in residential
environment is kept within a friendly environment for
persons with dementia. The surveyed nursing home
has seven group care units. In this study, one unit of
more severe dementia and three units of more mild
or moderate dementia were surveyed. The thirteen
resident persons with dementia were surveyed (six
persons with mild or moderate dementia and seven
persons with severe dementia). In this nursing home,

the transactions between behaviors of persons with
dementia and the living environments were analyzed
by behavioral mapping method and by interviewing
care staffs.

This study revealed the following:

1) Enhancing positive behaviors

The more Alzheimer’s disease becomes serious, the
more passive behaviors increase. However, in the
case of playing her or his roles with suitable supports
in the unit, positive behaviors tend to increase. It is,
therefore, important to hasten positive behaviors by
providing individual programs, which help residents
to play the role in the unit.

2) Activation of verbal communication

The more Alzheimer’s disease becomes serious, the
more verbal communications decrease. Therefore,
while the staffs positively engage residents, it is impor-
tant to familiarize residents with the intimate group
in order to promote verbal communication.

3) Identical common space

In many cases, artifacts in the common space are
decorated by staff members. As residents often show
their interests in familiar artifacts, it is important to
provide common spaces with the both personal and
communal items for familiarity.

4) Practical use of corridors

The active residents often utilize corridor for the var-
ious purposes: for a break, having private time, exercise,
and so on. Therefore, corridor is one of the important
components for creating homelike environment.

Keywords: dementia, homelike, group living,
nursing home, spatial behavior

DESIGN DIRECTIONS OF NURSING
HOME FOR THE DEMENTIA FROM THE
STAFF S POINT OF VIEW

Oh, Chanohk (Inje University, Korea), and Pak,
Hee Jin (University of Ulsan, Korea) [Poster]

As the elderly population increases, the number of
the people with dementia is also increasing. Until now,
most of the elderly Koreans with dementia have been

cared for by their children in their own homes. Due
to the social changes such as women’s roles and young
people’s consciousness toward the elderly, they are no
longer expected to be for cared by them. As a result,
the demands for nursing home for the dementia are
rapidly increasing. However, there are not enough
nursing homes in Korea, and most previous researc
related to nursing homes for those with dementia
were carried out with a focus on architectural
planning of nursing homes: space organization, the
type and number of rooms, the location and size of
required rooms in nursing home. Few research efforts
were performed focusing on the living behaviors in
dementia residents and there is very little research in
general regarding users’ needs. This study examines
the needs of staff working in nursing homes and
suggests design guidelines for Korean nursing homes.
The subjects were 15 nurses and 18 caregivers who
working in a nursing home for the dementia in Busan.
The average age of the nurses was 32.1 years and those
receiving care were 50.6 years. Staff members had
worked in this nursing home for approximately 3.5
years. Data was collected through a self-administered
questionnaire. The questionnaire consisted of
two parts: part one - items asking the degree of
importance of each of 24 design elements of nursing
home for the dementia, and part two - questions
about user needs in regards to facility size, the number
of persons per room, and interior atmosphere. The
degree of importance of each was asked using 5-point
Likert scale. The findings were as follows: first, the
most important design characteristic of the nursing
home for those with dementia as identified by the staff
was being a 'healing' environment. 'Function' and
'maintenance' were also mentioned as very important
characteristics. Secondly, the staff also pointed out
that 'the relation between individual room and
nursing station', namely, short distance between them,
and 'enough wandering space' had to be considered.
Also, ‘comfort and intimate atmosphere’, ‘fresh air
and sunlight’ were also pointed as important elements
in nursing home design for the dementia.

Keywords: nursing home, dementia, user needs

		<i>THE EFFECTIVENESS OF SECRETORY IMMUNOGLOBULIN A AS AN EVALUATE INDICATOR OF ENVIRONMENTAL STRESS FOR ELDERLY WITH DEMENTIA</i>	
		<i>Kodama, Masahisa (Waseda University, Japan), Sugiyama, Tadasu (Dosisha University, Japan), Kodama, Keiko (Japan College of Social Work, Japan) [Poster]</i>	
THEMATIC ABSTRACTS Environmental Gerontology Dementia/ Dementia Special Care Units	The present study was planed to investigate the effectiveness of employing s-IgA as a stress indicator for the elderly with dementia. Usually, stress responses were measured by questionnaires on the subjective aspects, and psycho-physiological methods as the objective phenomena. The techniques using verbal reply, such as questionnaires and interview, were not adequate to measure stress based upon verbal abilities. Also the psycho/physiological measures are undesirable because attached electrodes and wires make them stressful state as the invasive stressors. In this study, therefore, secretor immunoglobulin A, biochemical indicator was employed as noninvasive procedure. Saliva of elderly with dementia living in the group home setting was accumulated twice for abstracting secretor immunoglobulin A. The first accumulation was done within one month after their transfer into the group home. The second collection was performed five months later to measure the degree of reducing their stress responses of daily life. Each saliva collection was done for three days continuously. During those five months, the physical setting of the group home was changed from standard layout into a new style which allowed transferred dementia elderly (who were chosen as experimental subjects) to adapt easily. Another group of dementia elders were used as a control group, their group home remained in the standard setting. The elderly lived in the two group homes for six months to test the effects of spontaneous adaptation. The new design layout was developed in accordance with consultation by the dwelling elderly and the care workers themselves. Other indicators (a check list of daily behavior of elderly residents, questionnaires of stress responses of care workers, and a check	list of care workers emotional states) were recorded by care workers during the study. The abstracted secretor immunoglobulin A of experimental subjects was compared with those of control groups. Observed behavioral data such as total hours of using living room, conversation increasing significantly and number of hours staying in individual rooms decreased. Care workers were impressed that many elderly became more active and socialized in the new setting. s-IgA concentration and secretion rates seemed to reflect these changes in the elderly residents. Findings suggest effectiveness of s-IgA as an indicator on stress responses of elderly with dementia. New layouts also seem effective in helping dementia elders remain steady, active, social, and adaptive. But there are no assurances if these effects are solely due to the new physical setting itself. These elders vividly participated in actions to change their environmental setting. Many care workers were surprised their strong will and abilities. Such activities may enhance others and could potentially serve as motivation for daily living. Keywords: Stress, elderly, action research, healing environment, interior design	persons with dementia (Lawton, Weisman, Sloane, & Calkins, 1997) and in evaluating these environments. Two measures have been used most frequently to assess dementia care environments. The first is the Therapeutic Environment Screening Survey (TESS-2+), and the updated version, the TESS for Nursing Homes (TESS-NH). This measure is primarily descriptive, but discrete, indicating the number of desired elements that make up a therapeutic environment for people with dementia. The higher the score (out of 100) the more desired elements are present. A trained research assistant can complete the measure. The second, the Professional Environmental Assessment Protocol (PEAP), is to be completed by a design professional. The PEAP is scored out 45, with higher scores indicating that the therapeutic goals are better met. It was originally developed to validate the TESS-2+. However, because the PEAP is global in nature, only portions of the TESS-2+ could be compared with it during validation studies. Thus, each instrument provides unique information. The authors suggested that the PEAP could be used in conjunction with the TESS-2+ or TESS-NH and possibly as a stand-alone instrument (Lawton, Weisman, Sloane, Norris-Baker, Calkins, & Zimmerman, 2000). The TESS-2+ was adopted as an assessment tool in 1996 by The CAPITAL CARE Group, to assess dementia care units across 11 sites and help the units set environmental goals. Recently, in an applied study, the organization determined what added benefits would accrue by using the PEAP. When a veterans’ priority-access-facility was replaced, both the PEAP and the TESS-2+ were used to describe the differences between the original 1966 facility, representing an obsolete design, and the 2005 state-of-the-art design. To help decrease the subjectivity, inherent in the measures, two persons, both design professionals, completed each measure simultaneously but independently. Consensus on the ratings was subsequently reached through item-by-item discussion, and a single rating was determined. Overall results were substantially different for the two scales. The TESS-2+ resulted in an average score of 67.5 %, while a score of only 44 % was obtained on the PEAP. Since the TESS-2+ provides a description of the unit, e.g., number of common areas, etc., and the PEAP
		<i>AN EXPERIMENT ON THE ENVIRONMENTAL FACTORS OF IDENTIFICATION FOR THE DISORIENTATION OF DEMENTED ELDERLY IN THE SPECIAL CARE UNIT</i>	
		<i>Hwang, Yao-Rong (National Yunlin University of Science and Technology, Taiwan) [Paper]</i>	
		Alzheimer s disease and related disorders are some of the most common and debilitating chronic illnesses to affect older persons (Roughan, 1993). Disorientation is one of the major symptoms of moderate dementia (Teresi et al, 1997). The majority of the population of demented elders was found to have difficulty in identifying their personal room; so many signs such as drawings, decorations, numbers and color were installed to assist these elders. The concept of simplifying the corridor with no junction or turns is suggested in the planning of special care units (Lin et al, 1984). Nevertheless, only some of caregivers thought partial signs being useful, in fact most of the caregivers agreed that the effect of environmental factors for identification required demonstration (Hwang, 1998). This experiment explores the disorientation of demented elders	

in a special care unit in Taiwan and finds that environmental factors related to identification were used to improve the living status of demented elders and reduce the burden of caregiver, as well. There were 9 demented elders with moderate severity and their caregivers from three special care units participating in this experiment. The survey of daily activity proceeded for two months on a twice weekly schedule and non-daily activity survey bimonthly. A qualitative description was used to record the results of survey in regards to watching residents move from the dinning room or from the public activity space through corridor to the entrance of a bedroom or to the entrance of multi-bedroom to their personal bed. The assessment of environmental factors affecting identification was made through the interview of demented elders made by caregivers. Ages of the demented elders ranged from 68 to 93 with a mean age of 84.8, and 66.6% were women. Diagnosis of disease indicated that 66.2% of patients were ill with Alzheimer s disease and 33.8& were suffering from vascular dementia. The results showed that there were about one third participants routinely getting lost and failing to find their bedrooms among the nine demented elder participants. The nursing station, emergency exit, sofa, shoes, red ball, end of corridor, photo, picture, door and elevator served as effective environmental factors assisting demented elders in finding their bedroom and bed. The location of nursing station, the shape of the emergency exit, the door and elevator, and the number of sofas has been a major issue for environmental design. Although the above environmental factors and arrangements have been recognized as effective for designing for aging, several participants still suffered from disorientation and failed to improve on identification of their bedroom. It cannot be proved that any environmental factor would be effective for every demented patient because of the complexity of their psychiatric symptom. Long distances were seen as increasing the level of complication in finding one s room, and demented elders were easily confused in long hallways.

Keywords: experiment, cognition, wayfinding, design for aging, qualitative research

**SAFER AND MORE LEGIBLE
ENVIRONMENT FOR PERSONS WITH
DEMENTIA BASED ON EXPERIMENTAL
RESEARCH OF THEIR VISUAL SEARCH**

Akagi, Tetsuya (Kogakuin University, Japan); Kei, Adachi (Wakayama University, Japan) and Kunio, Funahashi (Osaka University, Japan) [Poster]

Various causes could account for wandering of persons with dementia. With regard to the physical aspects of living environment, wandering is attributed to disorientation due to disabilities regarding spatial orientation. Continuous walking or wandering behavior seems to be a kind of wayfinding, meaning a state of psychological confusion in an unstable situation coupled with looking for clues leading to their destinations. This walking is regarded as dangerous because of possible falls, accidents, etc. It is, therefore, useful to clarify the environment-behavior transactions used in wayfinding processes in order for us to know which conditions are significant in improving the environment by making it both safer and more legible, which in turn could be effective in decreasing wandering. Safety and legibility are issues that mutually relate in the living environment for persons with dementia. Legibility decreases uneasiness and the confusion of persons with dementia and leads to the prevention of wandering, which also supports more independent activities. The possible dangers such as falls and accidents, however, may increase when the vulnerable persons with dementia become more involved in independent activities. Therefore, safety and legibility in the living environment are important issues that should be examined together.

The purpose of this experimental study is to improve environment for persons with dementia in safer and more legible manners. This study is based on the characteristics of visual search process by analyzing their eye fixation behaviors. The experiment was conducted by four persons (a subject, a director, an assistant, a recorder). The movements of the subject's right eye were recorded in videotape at the rate of thirty frames per second through a NAC EYE-MARK

recorder of eye reflection camera method, while their walking for wayfinding in experimental settings.

Results and conclusions from this experiment included:

1) *Enhancing visual information of lower places*

Visual search for dementia elders tends to be biased towards lower places as easily seen through their lowered gaze. Therefore, it is important to provide visual information not only in the middle but also in the lower places along the wall. The lower visual information serves as supplementary clues in the case of missing visual information in the middle of the wall. Enhancing visual information in lower places is a key for supporting demented elders.

2) *Validity of continuous visual information*

The range of visual search for demented elders is limited and narrow. Therefore, it is important to provide not single clues but continuously plural clues.

3) *Clear exhibit of visual information*

When there is no visual information used as a clear clue, visual search is quite difficult. Therefore, the clear visual information needs to differentiate other information in environment by the color contrast, the form, the material texture, etc.

4) *Providing essential visual information from an early stage of walking*

They may fail to find the essential visual information by seeing unnecessary visual noises. Therefore, it is important to provide the essential visual information in relatively early stage of walking.

Keywords: dementia, visual search, wayfinding, spatial orientation, living environment

**THREE APPROACHES, ONE GOAL:
ADVANCING THERAPEUTIC GARDEN
DESIGN FOR THOSE WITH DEMENTIA**

Organizers: Diaz Moore, Keith (Washington State University) and Marcus, Clare Cooper (University of California, Berkeley) [Workshop/Working Group]

One of three areas of focus during last year's Environment-Gerontology Network half day intensive was therapeutic landscapes. Interest in this area has grown

substantially over the past decade as researchers such as Cooper Marcus, Ulrich, Zeisel and others have raised our awareness of the therapeutic benefit of nature-based environments, particularly for those experiencing dementia. Dementia is a cognitively-taxing syndrome, making everyday life increasingly difficult for not only the afflicted but also for their care providers. Increasing evidence suggests the importance of outdoor environments in the therapeutic milieu for people with dementia, particularly those in institutional settings. This workshop presents three inquires that are aiming to help us better understand and better design therapeutic landscapes for people with dementia. Over the past couple of years, Clare Cooper Marcus (University of California – Berkeley, CA) has begun to develop a “Therapeutic Garden Audit for Alzheimer’s Facilities”. This was piloted at the recent Acer Symposium in Portland, OR. Marcus presentation will focus on the intentions and development of this audit. Garuth Chalfont (University of Sheffield, Sheffield, UK) will present “Edge space and nature: Towards a therapeutic architecture for dementia care environments,” which critically explores an ecological approach to evidence-based design utilized in the actual creation of dementia gardens. Keith Diaz Moore (Washington State University, WA) will present preliminary outcomes from a study, done in conjunction with the Acer Institute, aimed at developing a library of exemplary therapeutic garden designs for people with dementia of the Alzheimer’s type. This library has been developed through the use of an email-based Delphi process involving an expert panel identified through a snowball, reputation sample. It is the hope of all three projects to aid in the development of improved standards of practice in this area, so as to enhance the quality of life for this population. Susan Rodiek (Texas A7M, TX) will serve as the discussant, but significant opportunity will be provided for audience discussion. Participants should emerge with an enhanced understanding of the relationship between landscape design and the therapeutic milieu for people with dementia as well as an awareness of different approaches being employed to enhance the state of the art in this growing field.

Keywords: design for aging, therapeutic gardens, landscape architecture, healing environments

LONG-TERM CARE			EFFECT OF NURSING HOME ENVIRONMENT ON QUALITY OF LIFE				
AUTONOMY AND COMPETENCE-PRESS: PERSPECTIVES OF RESIDENTS IN ASSISTED LIVING							
De Medeiros, Kate (University of Maryland), and Rubinstein, Robert L. (University of Maryland) [Paper]			Degenholtz, Howard B (University of Pittsburgh, PA) [Paper]				
THEMATIC ABSTRACTS	This paper explores autonomy and gendered affiliations with the environment in assisted living in the context of the press-competence model of gerontological environmental studies. It is based on the idea that while men tend to live shorter lives than women, they are often cared for by wives and daughters at home during the terminal period. In contrast, women live longer, may have chronic disease and will often end their lives adapting to assisted living (AL). AL loosely describes a residential facility that provides assistance with personal and medical services to residents who are still able to live on their own (CMS, 2004; Hawes et al., 2003; Wright, 2004; Zimmerman et al., 2003.) It is the fastest growing type of senior housing, with projected annual growth rates of approximately 20% in the upcoming years (Carder & Hernandez, 2004; Golant, 1999; Hawes et al., 2003; Wright, 2004). Around 80% of AL residents are women; their average age is 85 years and more than 50% experience some form of cognitive impairment (Wright, 2004). “Resident autonomy” is a major tenet in AL promotional literature. Most scholarly work focuses on autonomy as defined and described by AL staff and resident family members rather than from the resident’s perspective. In addition, few consider the gendered nature of AL and how notions of autonomy within a care environment may differ for men and women. Complementing the question of autonomy in AL is the question of how AL residents see themselves in the “press-competence” model. The press-competence model describes the relationship between environmental demands (i.e., press) and a person’s ability to adapt (e.g., competence), where				THEMATIC ABSTRACTS		
Environmental Gerontology					Environmental Gerontology		
Long-Term Care					Long-Term Care		
DOES LOCATION OF THE DAY ROOM MAKE DIFFERENCE IN DAILY LIVES OF THE ADULT CARE HOME RESIDENTS?							
Kepez, Orcun (North Carolina State University) [Poster]							
Assisted living facilities, which aim to provide home-like environments for the elderly, were often criticized for their institution-like restrictions in care programs (Schwarz & Brent, 2001). The quality of care and home-likeness of the environment are expected to increase as the scale of the building decreases to residential settings (Kane, 1995). Yet, the designs of these home-like residential settings are arbitrary and based on normative assumptions. This study will investigate the presence of differences in the daily use of environment by the residents of non-institutionalized adult care homes. Two care homes with similar plan configurations but different dayroom locations were selected as cases. Each building has the same linear block shape which reflects the double loaded corridor plan solution. In both cases kitchen and dining room is situated in the middle of the plan. In one case, the location of the day room is in the middle of the plan opposite of the kitchen and dining. However in the other case the day room is located at the end of the corridor. Each building has exits to outdoors from same spaces and each case is situated in a similar							
neighborhood that provides similar outside stimuli for the residents. During the study there were 3 and 6 residents in two houses. Two sites are observed for a 3 weekdays and 2 day in the weekend. Caregivers are asked to fill in a survey to provide information about each resident. 3 residents with same physical competence from each house are selected for tracking. After the completion of the observations these residents are interviewed about their daily experience in and around the house. From objective observations and tracking, it is found that adult care home with short walking distance between dayroom and dining room has more active residents than the other home where the dayroom has longer walking distances. Shorter walking distances between common spaces provide chance for residents to be more involved with meal preparation, coming early to kitchen and interact with the caregiver and the residents. Short walking distances between common spaces, which also have outdoor exits, also make easier for the residents to be active around the house. In one case where all common spaces are in the middle, dining area is used to access the backyard. There is more outdoor activity observed at the case with shorter walking distances. During the interviews residents from the home which has a direct relation between common spaces reported more activities than the residents of the other case. The active involvement with the environment provides more chance for social interaction and environmental satisfaction. This small study is conducted as a pilot for another study, yet it demonstrates the significance of spatial layout in terms of providing differences in daily lives of the elderly. Kane, R.A. (1995) Expanding the Home Care Concept: Blurring Distinctions among Home Care, Institutional Care, and other Long-term Care Services. The Milbank Quarterly, Vol.73, No. 2, Blackwell Publishers: Oxford, UK. Schwarz, B.; Brent, R. (2001) The Architectural Metamorphosis of Long-Term Care Settings. Journal of Architectural Planning Research, 18:3, pp: 225–269, Locke Science Publishing Company, Inc. Chicago, IL, USA.			Nursing homes provide both clinical care and housing for 1.6 million elderly in the US. The goal of this research is to identify features in the physical environment that are associated with quality of life. We used a newly developed instrument for measuring resident self-report quality of life. This instrument captures a broad range of psycho-social aspects of well-being, for example: privacy, autonomy, spirituality, meaningful activities. In addition, we collected detailed data on the physical environments for 1,988 residents in 40 facilities in 5 states. This study uses a previously developed typology of room, unit and facilities, to examine the effects of privacy, function enhancing features, and life enriching features on resident quality of life. Specifically, we used cluster analysis to identify 4 types of resident room and bath environments and 4 types of unit/facility environments. The different types differ in terms of the availability of various sets of features making it possible to examine the effect of a group of potentially beneficial features on resident outcomes. This approach takes into account the fact that many features are often implemented as ‘packages’, making it difficult to use conventional statistics to identify the impact of a single feature. We find that residents in environments with beneficial features tend to have better outcomes. However, many residents who could benefit from life enriching or function-enhancing features do not have access to those types of environments. Keywords: elderly/gerontology academic interdisciplinary quantitative research				
220	edra37 May 2006		edra37 Beyond Conflict		221		

	EXAMINING LIFE-CYCLE COSTS OF DIFFERENT BEDROOM CONFIGURATIONS IN NURSING HOMES
	<i>Calkins, Margaret (I.D.E.A.S., Kirtland, OH) [Paper]</i>
THEMATIC ABSTRACTS	
Environmental Gerontology	
Long-Term Care	It is clear that private bedrooms cost more for initial construction costs than either privacy-enhanced (L-shaped or toe-to-toe) or traditional (side-by-side) shared bedrooms. It is also fairly evident that the privacy afforded by a private bedroom is generally preferred by residents and family members, and may be associated with high quality of life indicators. Yet there is little evidence exploring other factors that may affect life-cycle costs of these different room configurations. This project used literature analysis, focus-group meetings with facility staff and residents, and a construction cost analysis of over 200 bedroom configurations to explore the impact of a broad array of variables. Four classes of variables were explored: Physical Features (construction costs, housekeeping costs, energy costs, etc.); Operational Issues (transfer costs, census, staff turnover rates, time spent managing roommate conflict, etc.); Psychosocial Issues (resident, family and staff satisfaction, call bell usage, quality of communication, etc.) and Clinical Outcomes (quality of sleep, falls, nosocomial infection rates, medication error rates, etc.). There was very little empirical data in the literature specifically related to nursing homes, although many features were identified as being of importance. The well-researched topics related to cross-infection rates and resident/family satisfaction. Focus group meetings identified additional issues, such as the need to relocate up to 3 or 4 residents in order to separate two incompatible residents, which substantially increases the amount of staff time required, or increased maintenance and housekeeping costs associated with shared rooms, possible because residents take less “ownership” and therefore take less care of these room than individuals in private rooms. Analysis of the construction costs indicate only modest cost differences between traditional shared and privacy-enhanced shared bedrooms, with more substantial cost differential between the two shared options and private rooms, due primarily to bathroom costs. This pilot

study will lay the foundation for larger, experimental study to explore these issues in greater detail.

Keywords: design for aging, architecture, privacy, construction

IMPROVING WAYFINDING INFORMATION FOR NURSING HOME RESIDENTS

Connell, Bettye Rose; Schuchard, Ronald; and Griffiths, Patricia (Rehab R&D, VA Medical Center, Atlanta, GA) [Paper]

Wayfinding problems (e.g., inability to find or recognize a destination), even in familiar settings, are well-known among older individuals with dementia. However, older individuals without dementia also experience wayfinding problems, especially in large, complex, and/or unfamiliar settings. Wayfinding difficulties have been associated with health-related outcomes (e.g., restraint use, falls, incontinence), as well as frustration and embarrassment. In addition to facility design and environmental conditions, directional and destination information impact wayfinding. Three aspects of wayfinding information are pertinent: (1) the content that is conveyed, (2) the legibility of the information, and (3) the likelihood it will be seen. Design-for-dementia best practices advocate for directional and destination information content that is meaningful to individuals with dementia (e.g., literal images, familiar language), attracts attention to decision points and commonly used destinations by making them visually distinctive (e.g., adding distinctive sign or decoration, painting door a different color), and provides individuals with frequent, multiple cues (e.g., words and pictures). Importantly, when wayfinding information is presented this way, it also works for those without dementia. Additionally, there are research-based guidelines on the graphic presentation of information to help to ensure it is legible to older adults with age-related and disease-based vision changes. However, little attention has been given to the third consideration – the placement of wayfinding information so as to ensure that it is likely to be seen by older adults who may not routinely look

as high as code-compliant signage is placed. Using wireless eye-tracker technology, we investigated (1) where cognitively intact and impaired nursing home residents look for wayfinding information, and (2) compared wayfinding performance (i.e., time to complete task, number of errors, hesitations, and redirects) under existing and “best practice” signage (i.e., easy-to-see, simple and literal content, placed where most likely to be seen) conditions. Subjects infrequently ($\leq$ 13% locations viewed) looked at locations with existing (code-compliant) signage. Cognitively intact and impaired walkers most frequently looked at the walls below the height of the handrail and at the floor (54% & 55% of locations viewed). Cognitively intact and impaired wheelchair users most frequently looked at the walls immediately above the handrail and down the hallway (51% & 64% of locations viewed). Wayfinding performance improved significantly with “best practice” signage placed near the floor and immediately above handrails, in comparison to performance with existing, code-compliant signage. Task time averaged more than twice as long for subjects who encountered more than the average number of visual distractions. Signs perpendicular to the route of travel were looked at twice as often as those parallel to the route of travel. These findings suggest that wayfinding performance can be improved in cognitively intact and impaired older individuals when directional and destination information is easy-to-see, easy-to-understand, and placed where it is most likely to be seen. Distractions interfere with performance and may pose safety problems.

Keywords: elderly, wayfinding

PREFERENCE OF THE ELDERLY IN ARCHITECTURE DESIGN OF LONG-TERM CARE FACILITIES – AN EXAMPLE FROM TAIPEI

Wang, Chia-Hui (Hwa-Hsia Institute of Technology, Taipei, Taiwan) and Kuo, Nai-Wen (Taipei Medical University, Taiwan) [Paper]

Developed countries, such as Taiwan, Japan and the U.S., have experienced tremendous growth of their

elderly populations. According to statistics from the United Nations, one out of every ten persons is now 60 years or above; by 2050, one out of five will be 60 years or older; and by 2150, one out of three persons will be 60 years or older (United Nations/ Division for Social Policy and Development, 2003). This continued population shift has created a need for the design of quality, home-like long-term care facilities. The initial portion of this study explored long-term care facilities design, with respect to physical and psychological perspectives, to improve architecture design of long-term care facilities. Following extended literature analysis, the researchers listed all possible design innovations related to long-term care facilities, according to residents’ physical and psychological demands systematically. These results were the base of the questionnaire content for interviewing preference of the elderly in architecture design of long-term care facilities. The second portion of this study analyzed transitions in long-term care concepts through literature review and in-depth interview. The researchers interviewed 5 long-term care providers and 3 nursing home administrators to clarify the evolution of long-term care concepts. The researchers also examined architecture design zeitgeists and their impact on improving long-term care facility design through literature review. The third and final portion of this study surveyed preference of the elderly in architecture design of long-term care facilities through a questionnaire survey. The researchers interviewed 102 elderly people who live in a retirement apartment in suburban area of the Taipei City.

1. Results showed the first 5 priorities in architecture designs that the elderly people preferred were:

- (1) Creating a continuous walking track for wanderers;
- (2) Providing adequate lighting;
- (3) Abiding by universal design concepts;
- (4) Creating the feeling of home;
- (5) Acoustic treatment of interior design.

2. There are three major zeitgeists may improve long-term care facility design.

(1) First of all, the design of modern long-term care facilities should always consider human needs in addition to medical functions. Accordingly, modern long-term care facilities should gradually replace

THEMATIC ABSTRACTS

Environmental Gerontology

Long-Term Care

traditionally sterile hospital-like settings with warmer, more home-like settings.

(2) Secondly, the design of contemporary long-term care facility should be flexible enough to allow multiple configurations for different stages of care according to residents’ health requirements. Thus, the institution-based elderly care can be gradually de-institutionalized under the concept of aging-in-place.

(3) Finally, the design of long-term care organizations should be rehabilitation oriented versus of traditional custody oriented arrangements. Hence the construction of living clusters is favored over traditional hospital-like wards in care facility design.

Keywords: long-term care facility design, healthcare architecture, aging-in-place, de-institutionalization, in-depth interview

A STUDY ON THE CLARIFYING ENVIRONMENTAL PROBLEMS OF THE NURSING HOMES FOR THE ELDERLY – USING PROFESSIONAL ENVIRONMENTAL ASSESSMENT PROTOCOL JAPANESE VERSION

Kodama, Keiko (Japan College of Social Work); Kageyama, Yuko (Japan College of Social Work); Aoki, Takao (Japan College of Social Work); Koga, Takaaki (Tokyo University, Japan) and Kojima, Takaya (Building Research Institute, Tsukuba, Japan) [Poster]

In Japan, more than 90% of the elderly living in institutions suffers from dementia, and it is urgently need that the existing institutions are modified to fit the lives of those elderly. “The Institutional Environment Improvement Program for the Elderly with Dementia” has been developed based on several years of basic research and applied to many institutions all over Japan. The six steps on the institutional environment improvement program are composed of concrete methods and various types of tools. PEAP Japanese version is an important method through each step. Like the original version, PEAP Japanese version is composed of 8 dimensions. This program

aims not only to change physical environment, but also lead to change the awareness toward environment and care of the care staffs and finally aims to change the life of the elderly with dementia. The step 2 is the key components to share and clarify the environmental problems of the institution. In step2, caption analysis is used to identify environmental problems. About 150 participants from six nursing homes took pictures of the places where they think good or bad, and wrote down brief caption on the picture. Staffs, residents, family members, volunteers and researchers are included. About 650 caption cards were got.

Almost of the caption cards were places which participants think badly. The places which participants pointed out mostly were 1) corridor, 2) private rooms, 3) dining rooms, 4) public bath rooms. According to the PEAP dimensions, the caption cards were categorized into 1) regulation and quality of stimulation, 2) continuity of the self, 3) maximize safety and security, 4) support functional abilities, 5) support awareness and orientation. There were not many caption cards on the dimension of provision of privacy and opportunity for personal control. The reason is that target nursing homes are conventional types of institutions which are composed 2–4 beds rooms. These results give us useful information to develop the new tools to support environment improvement by care staffs.

Keywords: elderly, design for aging, interior design, action research

WHAT FEATURES MAKE DESIRABLE COMMON SPACES AT ELDER FACILITIES?

Kanki, Yumi (Hyogo Assistive Technology Research and Design Institute, Japan) [Paper]

Due to the rapid increase of the elderly, many nursing homes have been constructed in recent decades in Japan. In 2002 regulations for nursing homes were changed and newly built homes are required to provide private rooms for residents. The regulations also require homes to be divided into units consisting of about 10 rooms and a common space in order to

create a home-like atmosphere. Private rooms protect residents’ privacy, but at the same time, they invite the risk of isolation. Therefore, common spaces play an important role in attracting residents to interact with others. What features make desirable common spaces? This study looks at an assisted living that is the first case to have private rooms and units in Japan. To analyze the residents’ space-use and behavior, the behavior tracking survey and the interview were carried out there. Each unit had a dining kitchen area, and residents spent more time there than other spaces in common spaces. Meals were cooked at the main kitchen and delivered to dining kitchen areas in units. Many residents, especially women, engaged in cooking rice, making miso soup, arranging foods on dishes, washing the dishes, and clearing the tables before and after eating. While engaged, they enjoyed chatting. So providing a kitchen that residents can use brings their active involvement. Except before and after mealtime, residents tended to spend time at a ‘Koagari’ space, a tatami room where the floor level was raised. They spent time chatting with other residents and staff members, smoking, folding laundry, and being idle there. The size of Koagari spaces affected postures residents took. At bigger Koagari spaces, residents tended to lie down or sit on a tatami floor. On the other hand, at smaller ones, they tended to squat on them. Residents spent more time at Koagari spaces from which they could view the whole unit, especially the dining kitchen area, than set back ones. There are some built-in wooden benches in the corridor. As with the Koagari spaces, if residents could feel the atmosphere and know what were going on from benches, they preferred to stay there. To conclude, residents wanted to know what was going on and looked for involvement that they could engage in, so they preferred to stay spaces where they could feel the atmosphere of the whole unit.

Keywords: Spatial behavior, elderly/gerontology, design for aging, architecture, post-occupancy evaluation

ENVIRONMENTAL PSYCHOLOGY

CONFLICTS IN ENVIRONMENTAL PSYCHOLOGY

Organizer: Imamichi, Tomoaki (City University of New York) [Workshop/Working Group]

THEMATIC
ABSTRACTS

Environmental
Psychology

Inspired by this conference’s theme “Beyond Conflict,” the aim of this intensive is to discuss some of the issues or conflicts facing people in the field of environmental psychology, such as where and how to position and define oneself within academia, the professional world and society at large. Some of the challenges and opportunities may be because environmental psychology has multiple roots, and draws from and works with multiple disciplines. There seem to be different interpretations of what environmental psychology is or should be with regards to theme, epistemology/methodology, or ideology. (Some of the different types of environmental psychologists could be classified as: psychologists dissatisfied with mainstream psychology that tends to neglect context, particularly the physical context, therefore focusing on the physical context; psychologists dissatisfied with their physical environments being shaped by ‘user-unfriendly’ modern architecture, trying to make the physical environment more user-friendly; and the so-called ‘green psychologists’, feeling the need to address environmental problems by encouraging pro-environmental attitudes and behaviors. There are also people in environmental psychology who would not necessarily identify themselves as psychologists, as there are environmental psychologists disguised in different departments and programs.) Participants are welcome to bring up issues and share their knowledge on the challenges and opportunities in the field of environmental psychology.

Keywords: environmental psychology, professional practice, academic, social issues, theory

DESIGN FOR GATHERING: THE VALUE OF FAMILIAR STRANGERS

Waxman, Lisa (Florida State University) [Poster]

They are the part of our daily experience; the familiar man in line at the coffee shop, the same cyclist on her way to work, or the man selling flowers on the corner. They are the familiar strangers who work their way into our lives. Their presence is comforting and we may miss them during an occasional absence. Milgram (1977) pointed out the special relationship neighbors may feel for familiar strangers. He found that neighbors assisting familiar strangers in need did so because they felt a special responsibility to them. Milgram said, “The familiar stranger status is not the absence of a relationship, but a spoken form of a relationship, that has properties and consequences of its own” (p. 53). Several authors suggest that casual encounters with familiar strangers may contribute to social capital. Putnam (2000) defined the concept of social capital as “the connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them” (p. 19). In *Bowling Alone*, which addressed the collapse and revival of American community, Putnam discussed the increasing disconnect from family, friends, neighbors, and social structure. Other scholars and social commentators have been concerned that there is a decreasing ability of people to connect with their communities and the people who live among them (Fleming and Von Tscharner, 1987; Lippard, 1997; Putnam, 2000; Stumpf, 1998). These authors point to the need for community gathering places that allow, not only for social interaction, but also for the bond that takes place when people are simply in the company of other members of the community. This study utilized mixed design research to explore the physical and architectural characteristics that encourage gathering behavior in selected coffee shops. The study was primarily qualitative in nature and uti-

lized the techniques of visual documentation, observation, and behavioral mapping, interview, and survey. Coffee shops were observed for a total of 75 hours to better understand how the spaces were utilized. Eighteen interviews were conducted to gather information on the meaning the coffee shops held for patrons. In addition, surveys were distributed to 94 patrons to assess their preferences regarding various design attributes in the coffee shops. A number of key findings emerged, including design attributes that encourage gathering. This presentation will center on the seating preferences of individuals and groups. Data revealed that 38% of coffee shop patrons sat alone. Results indicated a strong preference for seats that were considered sheltered, those with an architectural feature on at least one side. It was noted that 75% of patrons sitting alone chose sheltered seats. The features that created shelter included walls, windows, level changes, serving areas, and counters. Interviews indicated these seats provided a perceived protection from others as well as a vantage point for observation. Seating preferences for groups differed in that larger tables were preferred, with less emphasis on vantage points for observation. Interviews also revealed that patrons stressed the value of seeing the same people everyday, even if no verbal interaction occurred. These findings provide guidelines for designing spaces that provide opportunities for casual interaction with friends as well as familiar strangers.

Keywords: place attachment, spatial behavior, neighborhood, interior design, qualitative research

THE HOLOGRAPHIC PARADIGM: THE STAMMER AND THE INTERSTICE IN THE ABEYANCE OF THE CRYSTALLINE IMAGE IN GODARDIAN FILM GRAMMAR

Guneratne, Sanjeeva Ravin (University of Wisconsin – Milwaukee) [Paper]

Ever since the European Renaissance and the rise of positivism and scientific methodology during the Enlightenment, humanity’s goal has been the attainment to an objective view of the world in which we live.

From Cartesian logic, and the postulations of Newtonian physics that codified it, emerged a worldview that privileged the human being over all other life forms, an existential posture that, during the era of Post-Newtonian Quantum Physics, became anathema to philosophers, notably the postmodernists. The artists, however, occupying the interstitial no-man’s land between positivistic science’s hard-core factuality and the elusive meta-logic of mysticism (and released from their bondage to realism through the intervention of the photographic lens), could give full reign to their intuitions, indulge in the fanciful and become the harbingers of a worldview that uncannily presaged the formulations of Quantum Physics. This triggered off a chain of events in the world of graphic arts that ultimately resulted in the deconstruction of the artist’s subject on canvas. From Impressionism through Cubism to Abstract Expressionism, and to its final apotheosis in the monochromatic paintings of Rothko, non-representation held sway and completed the rout of realism in the sphere of the graphic arts. The fact that these momentous events were paralleled in the other arts (for example the deconstruction of the chromatic scale in music by Schoenberg, Berg, Bartok and others and the rupture of the box plan in architectural design by modern masters such as Wright and Mies) was indicative of a zeitgeist that was leading up to a climactic paradigm shift that was finally concretized through the upending of Newtonian physics by Heisenberg through his Uncertainty Theorem. The homocentric universe of the Enlightenment with its mind-based logic had disintegrated and in its stead, gaped the yawning chasm of uncertainty that denied us center stage and prevented humanity from dichotomizing reality into a subjective and objective domain – at least at the level of the subatomic world. The tropes used by film auteur Jean-Luc Goddard in his filmic oeuvre have a similar impact on the viewer. This paper, through an analysis of Goddard’s *Numero Deux* and *JLG*, attempts to demonstrate the manner in which his film grammar resorts to Derridan erasure in order to deconstruct the thinking subject and unify him/her within the totality of the film image.

Keywords: Film, aesthetics, meaning, deconstruction, conceptualization, poststructuralism

THEMATIC
ABSTRACTS

Environmental
Psychology

		<i>RETHINKING ENVIRONMENTAL PSYCHOLOGY FROM A PRAGMATIST PERSPECTIVE</i>
		<i>Organizer: Heft, Harry (Denison University, OH) [Symposium]</i>
		The American pragmatist philosopher John Dewey once characterized the approach to perceiving and knowing that continues to dominate psychological theory as “a spectator theory.” He called it that because the perceiver is portrayed as a detached observer of the environment, a passive onlooker in the manner of someone gazing at a picture. From this perspective, the affective dimension of experience is, at most, a consequence of perception, an adjunct to the process of knowing. This view characterizes much of the extant environmental aesthetics research literature. In contrast, Dewey took the animacy of all living things as his starting point and accordingly considered perceiving to be a dynamic, self-directed process whereby individuals’ actions are guided by relational, environmental properties that are themselves disclosed through action. Affective experience concurrently arises in the course of perceiving and directs action and selection of further relational structure. In other words, knowing and feeling are not separate faculties, but are intertwined agencies. The pragmatist perspective offers us a fresh vantage point from which to consider environmental aesthetics and the place of feelings in environmental experience. This presentation will explore a pragmatist-inspired claim that feelings guide actions that reveal relational structure, and in doing so disclose possibilities for discovery about the environment and the self. Keywords: environmental psychology, academic, social issues, theory
<i>THEMATIC ABSTRACTS</i>	<i>Environmental Psychology</i>	<i>Cognition</i>

COGNITION

ANALYSIS OF USER’S VISUAL PERCEPTION REGARDING ON THE UNIFIED PLATE SIZE OF SIGN SYSTEM IN PUBLIC BUILDINGS: THE CASE OF DIRECTIONAL SIGNAGE IN A GENERAL HOSPITAL

Paik, Jinkyung and Park, Heykyung (Inje University, Korea) [Poster]

As the number of large public buildings increases, sign systems that provide necessary information, indicate space position, and confirm space direction inside of the building are becoming more important. General hospitals require the most sings as well as the most varied, and especially need sign systems that are both effective and also create a comfortable atmosphere.

In this study, orientation and directional sign systems in the general hospital sign systems were analyzed in terms of visual communication design focusing on the information transmission.

The majority of existing design-related studies regarding visual factors of signs were mainly focused on literature surveys and analysis, as well as current situation and overall sign system questionnaires. However, I tried to suggest an objective study based on the user’s cognition on the typographic design factors of sign system that can be utilized as reference materials for the future sign system design.

Questions for this perceptual effect experiment were selected based on the situation analysis results of 10 general hospitals with more than 500 beds within the metropolitan area. The experiment was conducted regarding the unified plate size of the directional sign in attracting attention.

Three different directional signs, representing straight, left and right, were made. Two types of sign sample groups with different sizes but identical content were made. (Group 2 – three samples have different sizes depending on the amount of information.)

After taking photographs of the actual hospital environment suitable for the three types of directional signs, directional sign images of group 1 and 2 were synthesized to three different types of photographs. Sign unification, clearness and intelligibility (depending on the sign plate unification on the sign samples of group 1 and 2) was determine by showing pictures of the two groups to the subjects. Also, the effect of plate size unification on the overall sign design and functionality was investigated.

Results indicated that a certain degree of unification exists in both groups, and significant differences between plate sizes is not shown. Meanwhile, regarding on the sign clearness, the results indicate identical sign plates help people find the signs more easily. Also, 60.5% of subjects said that unifying the sign plate size is more effective in terms of design aspect. These results are generally in agreement with Passini’s theory of unifying the size and color of the sign plate for the sign comprehension; however, our results showing that different plate sizes do not affect the comprehension of sign information does not agree with his theory.

Keywords: cognition, spatial cognition, hospitals, graphic design, experiment

A CASE STUDY OF COEX MALL FOR EFFECTIVE SPATIAL COGNITION

Park, Heykyung (Inje University, Korea) [Poster]

These days, many large city downtown public spaces, such as subway stations or shopping malls, tend to change into mega-scaled and multi-functional complex spaces. As this occurs, their environmental affordability, especially in terms of wayfinding issues, seems to become more important. People use a mental map of a place to orient themselves and plan their trips. Providing information through the building design itself helps to create an accurate mental map and thus is an important aspect of universal design. Previous researchers suggested design principles like, Creating place identity at each location, different from all others, Making landmarks to inform where

navigators are, or Subdividing the space into regions with a distinct set of visual attributes. Coex Mall is a symbolic underground space in Seoul s center – newly developed, very crowded and especially loved by the young. The mall grew into a massive underground space with a complicated floor plan during a renovation for the ASEM conference in 2000. The mall sits in the middle of an underground passage connected to one convention hall, two hotels, an intercity airport, department store, subway station and other retail and working facilities. Plans called for it to be divided into eight small regional areas, each having a specific theme and corresponding interior treatments. The areas are: Mountaintop, Forest, Lake, River, Waterfall, Valley, Tropics, and Sea.

The purpose of this study is to suggest specific design guidelines on major interior elements that can produce place-identity-enhancing wayfinding affordability. This research consists of three sections. The first defines the main design principles enhancing wayfinding affordability and the criteria of interior treatments for creating place identity by literature analysis. In section two, the Coex Mall case studies were done via field inspections and photography. In section three, 40 subjects conducted a wayfinding experiment, visiting and observing four different places inside the mall. Following that, subjects answered a brief questionnaire and conducted a sketch map test.

1. From the field inspection, the Tropics and Sea areas are the most memorable because of their strong pattern and color.
 2. From the image map test, many subjects failed to conceptualize the space as a whole, required for easy wayfinding.
- A. 26.75% of the subjects could not draw a sketch map at all.
B. 26.75% of the subjects sketch maps appeared incorrect or were not recognizable.
C. 23.5% of subject’s sketch map appeared partly incorrect.
D. 23.5% of subject could complete their image map.
- Keywords:** Wayfinding, Spatial Cognition, Sketch Map, Place Identity, Seoul

*THEMATIC
ABSTRACTS*

*Environmental
Psychology*

Cognition

FROM BARRIER TO THRESHOLD:
BRIDGING CONTESTED SPACES

Callender, Jassen (Mississippi State University)
[Paper]

There are four basic concepts that are useful for any description of inhabitation: surface, space, barrier and threshold. The most problematic and paradoxical of these is “threshold.” Thresholds are perpetual separations between us and our environment; they act simultaneously to define, locate and differentiate. This last function is critical. While common sense suggests that a threshold is something like “an absence within a barrier,” not every opening is a threshold. Ideas of change, transition and difference are important. A piece of stone or wood or molded aluminum set in a floor or on the ground is powerless to affect us without difference. The experience of “change/transition/difference” is a necessary and, I will argue, sufficient condition of thresholds. A revised definition emerges: a threshold is simultaneously a perceived barrier (physical or not) between areas of difference and potential access (realizable or not) across that divide. The final entry in the American Heritage Dictionary, although psychological in nature, has material import: “the intensity below which a mental or physical stimulus cannot be perceived and can produce no response.” This can be read as a question of material range. How are thresholds materially different from other spaces? Is there a minimum material existence necessary for the perception of a threshold? Likewise, is there a maximum material limit at which a space is no longer perceived as a threshold but instead blossoms into a space in its own right? If we attempt to avoid these questions by limiting our discussion to physical description, we invite another difficult question: are the surfaces that form the space of a threshold part of the threshold, its surrounding barrier or its surrounding spaces? If we defer that question to individual differences by arguing that a threshold is a construction of perception – from some perspectives it is inviting, from others it is impassable – we have

to accept that the creation of threshold experiences lies outside our control. This debate remains at the level of theoretical rumination until we connect it to issues of community. Communities are volumes of privacy woven with desires for connectedness. Can we, as designers and planners, create passages between contested communities, between places where perceived differences (racial/ethnic, socio-economic, religious, etc) form barriers as real as walls? I will pursue this question through an analysis of the Church of the Holy Sepulchre, a seminal religious site in Jerusalem. How does its design connect it to its surroundings while maintaining its cultural/religious distinctiveness? What are its failings? This analysis will filter the church’s design through a diverse range of thinkers, from the pre-Socratics Heraclitus and Parmenides, through Foucault’s studies of power, Gloria Anzaldua’s essays on Chicana identity and gender issues, Gaston Bachelard’s Poetics of Space and Annie Dillard’s Pilgrim at Tinker Creek. Though often overlooked, the importance of understanding the design of thresholds cannot be overstated: Thresholds are the frames through which we perceive difference and understand.

Keywords: personal space/territoriality, culture, architecture, phenomenology, theory/conceptualization

PHYSICAL FEATURES OF
ENVIRONMENTS THAT PROVIDE BIAS IN
COGNITIVE MAPS

Matsushima, Natsuki and Hanyu, Kazunori (Nihon University, Japan) [Poster]

One of the prominent research findings of Geographic Profiling is “circle hypothesis,” proposed by Canter and Larkin (1993). Many researchers have challenged the validity of the hypothesis and most empirical findings have confirmed it. For example, Matsushima & Hanyu (2005) analyzed Japanese serial arson data and revealed supportive results: most of offenders’ homes are located within the circle. However, it is also shown that the locations of most offenders’

residences differ from the center of the circles, which is also presumed by the hypothesis.

One reason for the latter finding may be bias in people’s cognitive maps. The cognitive map is a subjective map composed in one’s mind, and no one has the same mental map as anyone else (Nakamura, 2004). Cognitive mapping is greatly influenced by various environmental factors, such places important in one’s daily life (e.g. school, office, shop, friend’s home, and bus stop) and topography (e.g. arterial road, bridge, river, mountain, and sea). For instance, we have places that we frequently use in our daily lives, so we are familiar with them, whereas we also have place that we rarely visit. Thus, people do not have information evenly in all directions from their residences, so it is may cause the bias in the direction that criminals move and visit. Therefore, clarifying the environmental factors that provide bias in cognitive maps makes it possible to reduce and limit the range of police investigation.

In this study, we examined environmental factors that promote or interfere with cognitive mapping for university students. The present study consisted of two parts:

1) We examined relationships between the spread of the cognitive map and physical environments. We asked participants to draw maps around their residences. By plotting the cognitive maps on the corresponding cartographic maps, differences between them were measured. Then we picked environmental factors that might provide large differences between a cognitive map and the corresponding cartographical map.

2) We explored the process of the cognitive mapping in new environments. We asked college freshmen who were just admitted to a university to draw the map around their university campus by hand. After half a year, we asked them to draw the map again and analyzed the change in the content of the drawn map.

Keywords: cognitive mapping, spatial cognition, spatial behavior

ENVIRONMENTAL ZOOLOGY

ADVANCING ANIMAL WELFARE WITH
CREATIVE ZOO DESIGN

Organizer: Maple, Terry L. (Center for Conservation and Behavior, Georgia Institute of Technology)
[Symposium]

Robert Sommer’s work ignited a zoo revolution. This symposium examines the fallout from these changes, including architecture and design elements, as well as scientific work conducted at Zoo Atlanta. **Keywords:** Zoology, psychology, ecosystems management

PLACES OF ANIMAL AND HUMAN
CONFINEMENT

Sommer, Robert (University of California, Irvine)

Places of animal and human confinement have numerous similarities and a unique connection to environment-behavior research. This presentation offers three propositions: (1) Environment-behavior research with humans began in and around psychiatric hospitals. (2) The theoretical basis for early environment-behavior research in psychiatric hospitals came from zoo studies. (3) Of all the settings in which environment-behavior research has been applied, the greatest impact and success have been in zoo design. Each of these propositions will be explored through a comparison between mental hospital deinstitutionalization and current demands for zoo abolition. As a resolution to these conflicts, a tripartite agenda for a modern zoo is suggested: political and social action to save habitat, environment-behavior research studies of proper conditions of confinement for animal health and welfare, and visitor research aimed at improving the educational missions of zoos.

ZOO DESIGN, REDESIGN, AND
RECONSTRUCTION

Organizer: Maple, Terry L. (Center for Conserva-
tion and Behavior, Georgia Institute of Technology)
[Symposium]

How animals behave in their environment reveals
a great deal about designing for humans as well. The
design of animal habitats that allow for human inter-
action has changed dramatically and constantly faces
new challenges, not least of which involves rebuilding
them after disasters. This seminar focuses on both
animal behavior and designing for them.

Keywords: zoology, psychology, ecosystems
management

MOVEMENT & WAYFINDING

INTERIOR TREATMENTS IN SUBWAY STA-
TIONS OF SEOUL FOR EASY WAYFINDING

Park, Heykyung (Inje University, Korea) [Poster]

In large cities, mass transportation has become
more commonly used and a more important part of
daily urban lives. Public spaces like subway stations
and their subsidiary extensions need to be effectively
constructed in terms of wayfinding because their
underground locations generate different wayfinding
problems than open air spaces and similar features.
Though wayfinding is very complicated issue, the
previous researches (e.g. Weisman, G. D.) indicate
that physical interior treatments can be used as visual
cues, especially following a continuously marked trail,
and piloting between landmarks (Allen, Gary L.) can
be good wayfinding means for those places. Architects
and designers face more challenges in combining
visual guidance with creating place identity in their
designs. The purpose of this study is to draw up
design guidelines for better wayfinding environments

by investigating and analyzing the interior treatments
used as visual cues for place identity in the subway
stations of Seoul, which needs to be identified by
users. The research consists with two major sections:
theoretical and case studies.

In the first section, the main design principles
enhancing wayfinding affordability and the criteria
for the survey of interior treatments were defined
and then the list and the nature of the major physical
interior elements were drawn based on them. At the
second stage, case studies were carried out in each
of 12 transaction subway stations located on the
No. 2 and No. 4 lines in Seoul and on wayfinding
design aids such as landmarks, graphics (as
continuous trails), colors and patterns, lighting by
field investigation and photo-recording method, and
typologically analyzed. The names of 12 transaction
stations are Seoul Nat’l Univ. of Education, Sadang,
Hapjeong, Jamsil, Daerim, Dong-daemun Stadium,
Dong-daemun, Chongshin Univ., Samgakji,
Chungmuro, Seoul Station and Ichon.

- The main results are as follows:
1. Based on the literature analysis, the specific design
guidelines for place identity could be focused on the
categories like landmarks, color codes, floor patterns
and wall decorations.
 2. Each subway station show its own place
identity to a certain level for wayfinding via interior
treatments like landmarks, marked trails, change of
colors, patterns, graphics, ceiling treatments, and
furniture arrangements.
 3. Symbolic colors for each subway lines (e. g. green
for Line 2, light blue for Line 4) were positively applied
as a super graphic or floor and wall patterns. Bright
colored tiles (white or ivory) were mostly used in the
cases of Seoul, along with some pattern work.
- Those results can be used as design guidelines for
the places that need high wayfinding affordability.
- Keywords:** wayfinding, subway station, interior
treatment, place identity, Seoul

MOVEMENT THROUGH PUBLIC PLACES:
PATTERNS AND CONFLICTING THEORIES

Organizer: Bitgood, Stephen and Dukes, Stepha-
nie (Jacksonville State University, AL), and Benne,
Marcie (Oregon Museum of Science and Industry)
[Symposium]

An examination of pedestrian movement through
the built environment reveals consistent patterns that
have important implications for designers of these
spaces (e.g. Bitgood & Dukes, in press; Bitgood, 2002;
Underhill, 1999; Whyte, 1988). Natural movement
patterns and designer goals may conflict in many cases.
For example, some museum exhibitions are designed
for entering on the left, while visitors tend to enter on
the right. Other patterns that conflict with designer
goals include jay walking, cutting across grass instead
of using sidewalks and walking around barren plazas
instead of walking through them. Theories to explain
these patterns exist, but we continue to struggle with
accurate predictions before an environment is built.

The first presentation of this symposium identi-
fies and describes commonly observed patterns of
movement in public settings (museums, shopping
malls, city plazas, hotels, etc.) These patterns include
moving toward landmark objects or other people,
walking on the right side of a pathway, right-turning
at choice points, exit gradient/inertia, and one-sided
exhibit viewing in museums. The influence of way-
finding signage fails to explain many of these move-
ment patterns. The second presentation (M. Benne)
reviews key concepts related to pedestrian movement
and discusses the pros and cons of trying to use each
concept to help predict human movement. These
concepts include orienting strategies, traversability,
self-organizing principles, schema, economizing,
environmental preferences, probability and norma-
tive behavior. Attendees will share their perspectives
on the interplay and relative weight of these concepts,
particularly with respect to different environments.
The third presentation (S. Dukes) will report some
recent data collected in shopping malls, a big box
retail store, and a university campus. This involves

pedestrian movement choices at three intersections
with a left-hand entrance door and a right-hand exit
door at a big box retail store. Walking and driving
data are presented from a university campus in which
driving from class to class has become problematic as
the enrollment has increased over the years. The pre-
senter will suggest a conceptual framework to guide
changes in walking and driving behavior. Attendees
will discuss the relationship between theory, predic-
tion, design process, and observed behavior. What
are the strengths and weaknesses in our theories, our
ability to understand the complexity and uniqueness
of each situation, and our design processes? Have we
gained understanding and improved design?

Keywords: pedestrian movement, design of public
spaces, literature review

THE SCIENCE OF SIGNAGE
– HOW EMPIRICAL RESEARCH CAN
CONTRIBUTE TO USER-CENTERED
DESIGN

Büchner, Simon and Hölscher, Christoph (Univer-
sity Freiburg, Germany) [Paper]

Successful “Wayfinding Design” involves architec-
tural and graphics design aspects as well as knowledge
about the cognitive processes of the user (Arthur
and Passini, 2002). This paper shows how cognitive
psychologists and graphic designers cooperated in de-
vising a user-centered signage system for an existing
complex multilevel university building in Freiburg,
Germany. The project was structured in three stages:

(1) Analysis of the setting. Usability challenges
of the building were identified using two methods:
formal analysis of the environment and an empirical
study of the users’ wayfinding behavior. Formal
analysis included the structural analysis of the
building and review of the existing guidance system.
In the empirical study, 32 participants performed
several wayfinding tasks. Half of the participants were
familiar with the building while the other half had
never visited the building before. The results revealed

that inexperienced users indeed had severe trouble navigating through the building due to its complexity and deficits in the sparsely distributed signage.

(2) Development of the signage system. Requirements for successful wayfinding were developed based on the former analysis. Following Arthur and Passini (2002), it focused on the users' decision making as well as the acquisition of a spatial representation of the setting. Drafts of the signage system developed by the graphic designers were refined according to the previously stated requirements.

(3) Evaluation. The same wayfinding experiment as in the analysis stage was carried out but this time after the installation of a full-size prototype of the new signage system. Another 20 volunteers who were not familiar with the building participated. The comparison of the results of experiment 1 and 2 showed substantial improvements in wayfinding behavior in various aspects. However, a qualitative analysis of the users' behavior revealed minor deficits in the signage system. After having eliminated these deficits, another four participants performed the wayfinding tasks. The results showed that the revision of prototype was effective.

Overall, the results demonstrate how the collaboration of cognitive psychologists and design practitioners can improve the quality of a design product. They show that the scientifically guided development of a guidance system can enhance the user's experience of an environment.

Keywords: cognition, spatial behavior, indoor spaces, wayfinding, design studies

WAYFINDING AND EGRESS ISSUES:
CONFLICTS AND CONCORDS BETWEEN
RESEARCHERS AND DESIGNERS

Organizers: Saif Haq, (Texas Tech University) and Torgrude, Sue (Boelter Design Group, WI). Boelter, Stephen (Boelter Design Group, WI), Pauls, Jake (Jake Pauls Consulting Services in Building Use and Safety, MD), Jerry Weisman (University of Wisconsin – Milwaukee) [Symposium]

In matters of wayfinding and egress, researchers analyze orientation abilities, navigation strategies, route choice preferences, wayfinding schemes, behavioural attitudes, cognitive inclinations, etc. of the visitors, and physical variables of the environments, including signage. In their effort to be precise, they focus individually on a limited number of specific variables. On the other hand, building designers are simultaneously concerned with many issues and often rely on heuristic learning. In their scheme of thinking, wayfinding and egress are important concerns but perhaps not the major ones.

In this situation, how can research results be made more relevant and appropriate? What level of specificity is useful for architects? Do conflicts arise between research and design; and if so, how are they resolved? The EDRAMOVE session will focus on such questions. It will be in the format of a panel discussion where wayfinding researchers, wayfinding consultants and architects will participate. Following five-minute presentations by each panelist on the conflicts and concords between researchers and designers regarding wayfinding and egress issues, the audience will be invited to participate in a discussion with the panelists. The moderator will introduce the session issues and summarize the discussion including outcomes and recommendations.

HEALTH ENVIRONMENTS

ADVANCES IN ACUTE HEALTHCARE
DESIGN RESEARCH

Organizers: Chaudhury, Habib (Simon Fraser University, Vancouver, BC) and Mahmood, Atiya (Oregon State University, OR) [Symposium]

The design of the physical environment is increasingly recognized as an important aid in the healing process and care of people in healthcare settings. Demographic changes (e.g., the aging baby boom generation, increasing life expectancy and chronic diseases) could result in a 46 percent increase in acute care bed demand by 2027. These days, healthcare designers are designing inpatient care units much more like critical care units. Nursing stations are being designed to allow for closer proximity of nurses among themselves and to the patients. Built-in flexibility in design is becoming more crucial, mainly because technology is quickly obsolete and patient populations are constantly changing. Hospital designers will face increased expectations in terms of providing care environments that are responsive to, among other issues, reduced hospital-acquired infections, therapeutic healing environment for patients, accommodating family members, reducing medical errors, etc. Several studies have documented the relationship between environmental design of acute care settings with care efficiency, improved quality in care practices, and patient healing and safety. Two key organizations that have the expressed mission of supporting healthcare design research, dissemination and policy change are the Coalition for Healthcare Environments Research (CHER) and the Center for Health Design.

This symposium will present findings from recent research funded by these two organizations linking physical environment and quality of care outcomes. There are four presentations in this forum. Shepley and Harris will introduce CHER and present findings from their recent study that focused on the impact of

single-room neonatal intensive care on users' health and satisfaction. Battisto's presentation will be based on her study of clinical laboratories and evidence-based design. Chaudhury and Mahmood will present from an ongoing study of effect of environmental design on medical/nursing errors in hospitals. Finally, Zimring and Joseph will present key findings from their extensive review of the literature on healthcare design and from the Pebble Projects, an initiative by The Center for Health toward developing evidence-based design guidelines.

Keywords: health/healing environments, healthcare

COALITION FOR HEALTH ENVIRONMENTS
RESEARCH AND A RECENT
STUDY: THE IMPACT OF SINGLE-ROOM
NEONATAL INTENSIVE CARE ON USERS'
HEALTH AND SATISFACTION

Shepley, Mardelle (Center for Health System & Design, Texas A&M University) and Harris, Debra D. (Department of Interior Design, University of Florida) [Paper]

This presentation will describe the history and research activities of the Coalition for Health Environments Research (CHER). The mission of CHER is "to promote, fund and disseminate research into humane, effective and efficient environments through multidisciplinary collaboration." Recent projects funded by CHER include The Rate and Nature of Change in Hospital Laboratories, Color in Healthcare Environments, The Use of Single-Patient Rooms versus Multiple-Occupancy Room, Limiting the Spread of Infection in the Healthcare Environment, and The Role of Humidity in Long-term Care Environments. The most recent project is The Impact of Single-room Neonatal Intensive Care on Users' Health and Satis-

faction <http://www.chereseach.org/pr_2004-08-23.shtml>. This study included data from 11 hospitals and used multiple methodologies: behavior mapping, family and staff questionnaires, analysis of outcome, and cost data and plan analysis. The results and conclusions of this research will be presented.

Keywords: health/healing environments, healthcare

**A DECADE OF PATIENT AND FAMILY
CENTERED CARE IN ICU DESIGN:
A SURVEY OF THE BEST
PRACTICE EXAMPLES**

Rashid, Mahbub (University of Kansas) [Paper]

Intensive care unit (ICU) is synonymous with the critical care unit (CCU). It is a location in the hospital where critical care (i.e., the care for patients with acute, life-threatening illness or injury) is provided. ICUs include the medical intensive care unit (MICU), the surgical intensive care unit (SICU), the pediatric intensive care unit (PICU), the neonatal intensive care unit (NICU), the neuro intensive care unit (Neuro-ICU), coronary care unit (CCU) and the burn unit. Patient care in ICUs is provided by multidisciplinary teams of physicians, nurses, respiratory care technicians, pharmacists and other allied health professionals who use highly sophisticated equipment and the services of expert support personnel.

The importance of ICUs in today's healthcare delivery system is enormous. Nearly 80% of all Americans will experience a critical illness or injury, either as the patient, family member or friend of a patient. Though ICU patients occupy only 10% of inpatient beds, they account for nearly 30% of acute care hospital costs (CritCare Med 1994; Halpern, Bettes, & Greenstein, 1994). According to a 1984 report of the Office of Technology Assessment, 80% of hospitals in the United States had ICUs and >20% of hospital budgets were expended on the care of intensive care patients (Berenson, 1984). With more aging U.S. population and more critical illnesses, the demand for critical care services is rising each year. At the

same time, significant changes are occurring in ICU care services. Hospital administrators are continually seeking new methods to provide better care to their ICU patients. In addition to making necessary changes to medical informatics and technology, they are also adopting the principles and guidelines for family centered care and working constantly to integrate families into the culture and routine of ICUs to ensure the best possible outcomes and experiences of patients and their families. As a result, patient and families viewpoints have become integral to ICU Design. The purpose of this survey is to understand how patients and their families have been integrated with the physical design of the ICUs in the last decade. It includes thirty (30) ICUs that were recognized as the best practices of patient and family centered care by the Society of Critical Care Medicine (SCCM), the leading multidisciplinary membership organization of critical care practitioners. The survey focuses on various ICU design considerations related to:

- Improving the multi disciplinary interactions often needed for most critical care patients;
- Reducing the physical labor of ICU staff, so that they can be more effective in patient care;
- Efficient and effective record keeping without compromising patient privacy;
- Reducing infection control and improving compliance with regulations to ensure patient safety;
- Reducing costly patient transfer, which is also a primary source for avoidable medical errors and staff injury;
- Providing better accommodation for medical equipment and life support systems in the unit and in patient rooms;
- Improving staff communication with patients and their families;
- Improving comfort of patients and their families;
- Improving overall flexibility in the face of continuous change in medical practice.

This survey of a decade of developments in ICU design is important for it may help us understand the trends in ICU design. It may also provide benchmarks to evaluate current as well as future best practice examples. Additionally, it may provide a solid founda-

tion for evidence-based ICU design to minimize unexpected problems and to take maximum advantage of design opportunities to improve patient care. The survey, however, does not look at the design processes of the best practice ICUs, which most often involve an intense collaboration among researchers, clinicians, and designers. It also does not verify independently if the ICU design trends observed in the study were able to improve patient care. This is important because SCCM generally selects the best practice ICUs based on the self reported data and assessment provided by the participating hospitals themselves. Finally, this survey does not study the validity of different methods and metrics for evaluating ICU patient and staff outcomes used by the participating hospitals. Any future survey of the best practice examples should then select its case studies based on a set uniform assessment and evaluation metrics.

Keywords: intensive care unit (ICU), critical care unit (CCU), family centered care, evidence-based design hospitals; healthcare facilities, case study; literature survey

References

Berenson RA (1984) Intensive care units (ICU's): Clinical outcome, costs, and decision-making (health technology case study). Office of Technology Assessment, U.S. Congress, OTA-HCS-28, Washington, DC: U.S. Government Printing Office.

Halpern NA, Bettes L, and Greenstein R (1994) Federal and nationwide intensive care units and healthcare costs: 1986–1992. *Critical Care Medicine* 22:2001–2007

Society of Critical Care Medicine (1994) Joint Position Statement: Essential provisions for critical care in health system reform. *Critical Care Medicine* 22: 2017–2019

**DESIGN RESEARCH IN PRACTICE:
EVOLUTION AND FINDINGS OF AN
EVIDENCE-BASED DESIGN RESEARCH
PROJECT**

*Geboy, Lyn; Keller, Amy Beth; and Schnuck, Kathy
(Kahler Slater Architects, Milwaukee, WI) [Paper]*

This report presents the findings of an environmental design research project conducted by a multidisciplinary architectural firm for a Midwestern healthcare client (tertiary hospital with 440 beds). The initial purpose of the project was to make an evidence-based design (Hamilton 2004) recommendation for flooring in the hospital's nursing unit corridors. After recognizing the role of flooring material as a potentially significant component in a sound environment, the project rapidly broadened to encompass the issue of sound/noise in a hospital setting. The goal of this broader project was to develop a systemic, evidence-based design strategy for sound control intended to facilitate a healthy sound environment in all newly designed in-patient care units. The project had two objectives: (1) to assess the sound environment in one unit of the hospital (in terms of types of sound sources, and dB levels), and (2) to identify which of two flooring materials (vinyl or carpet) presented a better performance profile in terms of three criteria: potential to contribute to an overall program of sound control, ease of maintenance, and infection control. Findings of the multi-method, descriptive study revealed a wide range (103 different types) of sound sources present in the unit, with a total of 7142 sound incidents recorded over a 20-hour period. Human behavior and interactions were the most frequent types of sounds observed on the unit, followed by sounds emitting from fixed features in the environment (i.e., elevators), sounds from non-fixed features in the environment (i.e., rolling carts, chairs, movable patient equipment), and sounds from semi-fixed features in the environment (i.e., telephones, televisions). Results of field measurements of sound taken from inside three patient rooms (87,683 data units recorded over a period of approximately 49 hours) indicated

the mean sound level of the unit exceeded the EPA recommended day maximum by 2% and the WHO recommended level for continuous sound by 31%. The mean maximum (peak) sound level of the unit (73 dB) exceeded the EPA recommended maximum of 45 dB by 62%, and the WHO recommended night-time peak maximum of 40 dB by 83%. However, the mean sound range (42 to 73 dB) of the unit was consistent (even marginally lower) than the typical range reported by noise level studies as noted by Ulrich and Zimring (2004) (typical range: 45 dB to 68 dB, with peaks exceeding 85 dB to 90 dB). These findings provided the basis for recommendations in two realms: architectural/ environmental features, and human behavior and interactions. Fixed, semi-fixed, and non-fixed feature-design responses incorporated architectural, material, and technological ideas intended to minimize/buffer the transfer of noise and minimize noise production. As human behavior and interactions constituted the greatest categorical source of sound on the unit, recommendations for this realm centered on development and implementation of a systematic culture change program aimed at raising sound/noise awareness and establishing a healthy sound environment.

Keywords: health/healing environments, sound, professional practice, research in practice, evidence-based design

DEVELOPING THE EVIDENCE BASE FOR
HEALTHCARE DESIGN

Zimring, Craig (College of Architecture, Georgia Institute of Technology) and Joseph, Anjali (The Center for Health Design) [Paper]

Over the next decade, a large number of U.S. hospitals will be built and older ones replaced and renovated. Approximately \$20 billion per year will be spent on hospital construction by 2010. This once-in-a-lifetime construction program provides an opportunity to rethink hospital design, and especially to consider how improved hospital design can influence

the quality of care provided. A recent study conducted by researchers at Texas A&M University and Georgia Tech and published by The Center for Health Design, identified more than 600 articles, most published in peer-reviewed scientific journals, linking the physical environment with patient and staff outcomes in hospitals. Clearly, the evidence base exists. A new generation of healthcare designers and providers are working to harness this evidence to inform the design of new or replacement healthcare projects. The Pebble Project, an initiative by The Center for Health Design, brings together these innovative healthcare organizations involved in hospital construction projects. The Pebble Partners as they are called are committed to critically analyzing the available evidence while proposing new and innovative design solutions to problems. Further, they are measuring the effectiveness of these innovations through careful research. Finally, by sharing their research findings with the larger community they are contributing to the evidence base and so the cycle continues. We present key findings from the literature review study linking the physical environment with patient and staff outcomes, a brief overview of the Pebble research projects currently underway and some preliminary findings from these projects.

Keywords: Construction, health/healing environments, healthcare

FLORIDA INSTITUTE FOR PUBLIC
HEALTH: COLLABORATIVE MASTER
PLAN DEVELOPMENT THROUGH STATE
AND LOCAL PARTNERSHIP

Putterman, Joel (Jacobs Advanced Planning Georgia, Atlanta GA) [Poster]

The vision for the Florida Institute for Public Health (FIPH) is to become a center of excellence for public health, be recognized as an international collaborative for research, training, and treatment of infectious diseases, and to foster partnerships with the Town of Lantana, Palm Beach County, academic institutions, and private foundations. The master plan for the FIPH ac-

commodates public health, laboratory, university and incubator research functions, combined with residential, retail, office and public recreational uses in an over 1 million gross square foot mixed-use development. The plan is well integrated into the existing urban fabric of the Town of Lantana and accommodates a 100-bed respiratory hospital, laboratory and research functions, clinics, and a mix of residential, retail and office functions in a walkable and human-scaled town center design with an architectural character reminiscent of the south Florida vernacular. The collaborative master planning process was guided by an advisory committee made up of state, local, and municipal leadership, as well as representatives from the university research community. Citizens of the surrounding neighborhoods participated in a number of planning workshops, which provided input to the development of the overall plan, including decisions of the mix and densities of land use, as well as the development's image, style and character. A comprehensive planning approach for the 135-acre property was applied, which included visioning and data gathering sessions to identify user needs and requirements, assessment of existing conditions, including space utilization, functional synergies, growth projections, parking, pedestrian circulation, open space, environmental concerns and utility systems. Existing public health and research programs, as well as future growth options were considered in the planning process to determine the ultimate space, functional needs and development program. An environmentally sensitive scrub preservation area is also included as part of the plan.

The overall planning process applied was one of collaboration between state, local, town and private interests. The involvement of surrounding area residents gave great value and validity to the overall planning and decision making process. What began as a somewhat hostile environment of townspeople feeling they should have total control of the land that the state had neglected over the years, ended in a truly win-win for everyone in the creation of the Institute, being able to provide health services and education and research space, with the potential for positive spin off of incubator related clean industry for the Town. A truly collaborative decision making process was reinforced and

illustrative of a true shared authorship in the overall planning process and development of the plan.

A radial development concept evolved after a series of public workshops and charrettes to ascertain the best development strategy. The overall image and character of the development was mutually agreed upon via a series of public workshops. Public involvement was key to both the successful evolution of the plan as well as the successful integration of the development into the overall surrounding community. The project represents tremendous economic potential for the Town for years to come.

This property's desirable location east of I-95 in the relatively small Town of Lantana creates significant opportunities for the Town, the State and the public. The State of Florida will benefit by having an internationally recognized Institute for Public Health strategically located along existing major transportation systems.

The Town of Lantana will benefit by adding to its value in terms of tax revenue and an increase in high quality jobs for both residents and commuters. Land uses surrounding the Institute will increase in value and can attract related desirable business; thereby adding to the Town's job/tax base. The public benefits by having a conveniently located center of excellence for public health.

IDENTIFYING THE ENVIRONMENTAL
CONDITIONS THAT SUPPORT THE
SUSTAINABLE CREATION OF 'GENERATIVE
SPACE' IN SETTINGS FOR HEALTH CARE
AND HEALTHCARE IMPROVEMENT

Organizer/Presenter: Ruga, Wayne (The CARTIAS Project, Deerfield Beach, FL) [Workshop/Working Group]

Question: Although the E-B literature, as well as other academic and professional literature, contains numerous references that offer conceptual and practical approaches to creating environments that improve health and healthcare, why is it that so many facilities continue to be constructed and operated that

do not effectively utilize these approaches in a manner that is sustainable over time (with notable contributions by many EDRA members)? The specific purpose of this working group is to engage in a critical discussion of the work in progress with the principle objectives of: 1) developing answers to this question that will enable consistent environmental progress to the both sustained and accelerated; and (2) developing a laser-like focus on this question that can be expanded in next year’s EDRA conference with a workshop, symposium, and/or intensive that is appropriate to EDRA’s role in furthering the development of this knowledge and consequential improvements to practice. Many different terms have been applied to the concept that the environment might influence enhanced outcomes, such as: supportive environments; evidence-based design; sacred space; etc. As a means to offer increased clarity on this highly ambiguous and contested subject, I propose the use of the broader term, “generative space.” In this regard, I suggest that any condition, whether it be physical, social, or a spatial, that enables people to experience an improvement in their own health and/or life be called a generative space – a space that, by definition, is truly “beyond conflict.”

This working group will be facilitated as an informal, participative and interactive roundtable discussion. The outcome of this working group will be the development of a set of strategies to systematically map the progress in answering this question. Over the course of several consecutive EDRA conferences following this one, the development of these strategies will be used to accelerate both systemic and sustainable progress in supporting the creation of those health related and healthcare facilities that more consistently engender “generative space.”

Keywords: health, healthcare, design for aging, interdisciplinary, leadership

**INSIGHTS INTO THE PEBBLE PROJECTS:
THE ROLE OF THE PHYSICAL
ENVIRONMENT IN THE HOSPITAL OF
THE 21ST CENTURY**

Organizer: Joseph, Anjali (The Center for Health Design, CA) [Symposium]

The United States is facing one of the largest hospital building booms in U.S. history. As a result of a confluence of the need to replace aging 1970s hospitals, population shifts in the United States, the graying of the baby boom generation, and the introduction of new technologies, the United States spent more than \$16 billion for hospital construction in 2004, and this will rise to more than \$20 billion per year by the end of the decade. These hospitals will remain in place for decades. This once-in-a-lifetime construction program provides an opportunity to rethink hospital design, and especially to consider how improved hospital design can influence the quality of care provided. Just as medicine has increasingly moved toward “evidence-based medicine,” where clinical choices are informed by research, healthcare design is increasingly guided by rigorous research linking the physical environment of hospitals to patients and staff outcomes and is moving toward “evidence-based design”.

A study conducted by researchers at Georgia Tech and Texas A&M identified more than 600 articles, most published in scientific peer-reviewed journals, linking the physical environment of healthcare facilities with patient and staff health, financial and operational outcomes. Clearly, the evidence base exists. The challenge lies in utilizing this evidence to inform design decisions and to follow up on the outcome of the decisions made. The Center for Health Design, a nonprofit research and advocacy organization, has pioneered a joint research effort with healthcare providers called the Pebble Project. These healthcare organizations are at different stages in the design and construction of new replacement projects, renovations or hospital extensions. By becoming a Pebble Project Partner, these organizations commit to utilizing research evidence to inform decisions during this

critical phase of their development and to measure the outcomes of the decisions they make once the project is complete and to share the results of these efforts with the design and healthcare community. The field of evidence-based design provides a great platform for researchers and designers to come together to address issues that will shape the quality of care provided in healthcare facilities for years to come. The purpose of this working group on “The Role of the Environment in the Hospital of the 21st Century” is to provide a forum for discussing issues in this emerging field with the primary goal of clarifying research directions and developing collaborations between researchers, designers and healthcare organizations. The session will be organized into three parts:

- I. A brief discussion of the issues
- II. Five-minute presentations by each person, briefly describing their work or what they feel to be a key issue
- III. Discussion of fruitful research directions, collaborations

Keywords: healthcare, healing environments, evidence-based design

**THE NATURE AND RATE OF CHANGE IN
HOSPITAL LABORATORIES**

Battisto, Dina G. (Graduate Studies in Architecture + Health, Clemson University) [Paper]

Today’s clinical lab, one of the hospital’s largest departments, produces vital information that doctors use for disease prevention, diagnosis and treatment. Like many other clinical departments in hospitals, clinical labs are experiencing accelerating changes in activities as medical science, technology, and healthcare practices evolve. To accommodate these often-unpredictable changes, there has been a great deal of attention devoted to creating flexible designs and furnishings. Even so, the hypothesis that hospital laboratories require a high degree of flexibility had been essentially untested until this study, sponsored by the Coalition for Health Environments, was completed. Findings from this study strongly confirm the

need for flexible designs and furnishings that support variable clinical applications.

A multi-methodological approach was utilized employing both survey research and case study research to triangulate conclusions. First, self-reported data was collected from a national sample of laboratory staff using an interactive web-based questionnaire. Second, case study research was used to document the types of changes considered or completed by clinical laboratories within three common laboratory typologies – a compartmentalized laboratory, an open/flexible laboratory, and an automated laboratory. Research findings are organized in three areas: specific activities, technological processes and the physical environment comprised of infrastructure systems, space plan, and contents in the laboratory. Design recommendations for addressing flexibility in future hospital laboratory constructions and renovations are presented including zoning the lab based on technological processes, an open plan configuration, plug-and-play utility systems in the highly flexible zone and modular workstations and furniture.

Keywords: Case study, health/healing environments, healthcare

**POST-OCCUPANCY EVALUATION OF
NEGATIVE PRESSURE ISOLATION ROOMS**

Kuo, Nai-Wen (Taipei Medical University, Taipei, Taiwan) and Wang, Chia-Hui (Hwa-Hsia Institute of Technology, Taipei, Taiwan) [Paper]

In the spring of 2003, the epidemic outbreak of Severe Acute Respiratory Syndrome (SARS) in Taiwan was very severe. To prevent the spread of SARS, many hospitals reconstructed their normal patient rooms and converted them into negative-pressure isolation rooms. To make sure these negative-pressure isolation rooms are well designed, it is necessary to conduct post-occupancy evaluation (POE) studies for the negative-pressure isolation rooms. No published literature related to POE of the negative-pressure isolation rooms exists.

This research was one of the pioneers in the field of hospital POE in Taiwan. The results of this study would be valuable for modifying existing guidelines of negative-pressure isolation rooms. The sampled hospital was a major hospital treated SARS patients in Taipei in 2003. In the aspect of qualitative research, two sessions of focus group discussions (FGD) were conducted. There were six participants in each session. The purpose of the FGD is to explore the deep opinions of users, include physicians, nurses, and other staff of the SARS isolation rooms. The researchers also visited the sampled hospital for field observations in the design and operations of the negative pressure isolation rooms. Related literature, including the guidelines for negative-pressure isolation rooms in the United States, Canada and Australia were also reviewed. The results of the research provided valuable opinions in establishing or amending the guideline of negative-pressure isolation rooms in Taiwan.

- The results were listed as follows:
1. Due to the limited space and economic concerns, the anteroom can be waived since there is a high-quality negative-pressure room with robust ventilation system and good pressure differential.
 2. If possible, single-bed rooms are preferable to reduce nosocomial infection.
 3. To cope with emerging needs of patients, many participants in the focus groups suggested it is better to have an operating room located in the isolation area.
 4. Generally speaking, participants thought the existing negative-pressure isolation rooms successfully prevent the spread of SARS. About 90% to 95% of the patients admitted to the negative pressure isolation rooms recovered.
 5. The flow for transporting patients and suspected infected materials should be separated from the flow of staff. An elevator used exclusively for transporting patients and suspected infected materials is preferable to reduce possible infection.

Keywords: focus group discussion, negative-pressure isolation room, post-occupancy evaluation, SARS, nosocomial infection

REDUCING NURSING ERRORS AND
INCREASING EFFICIENCY THROUGH
ENVIRONMENTAL DESIGN IN ACUTE
CARE SETTINGS

Chaudhury, Habib (Department of Gerontology,
Simon Fraser University) and Mahmood, Atiya
(Department of Design and Human Environment,
Oregon State University) [Paper]

Nurses’ work in the acute care environment is physically and psychologically intense with much risk of burnout, stress, and error. Ulrich et al. (2004) have argued that reduction of staff stress and error by ergonomic interventions, as well as environmental considerations (such as air quality, acoustics, lighting, etc.) can have significant impact on staff health. It can also influence staff efficiency and contribute towards patient safety. It is claimed (e.g., Harrison, 2004; McCarthy, 2004; Reiling et al., 2003; Rollins, 2004; Scott, 2004) that specific environmental conditions, such as type of lighting (artificial versus natural lighting), degree of lighting in nurses’ workspace, and thermal condition in the work area affect performance (e.g., artificial lighting producing the effect of feeling drained and tired; inadequate lighting leading to medication error). Research has demonstrated that high noise levels in acute care environments are detrimental to work performance (e.g., Tofp and Dillon, 1988). Design and operation of hospitals have a major impact on recruitment and retention of nurses (e.g., Scott, 2004). A review of the literature was conducted examining the relationships between healthcare environments on staff efficiency and nursing errors. This presentation will highlight the key issues and categories identified in the literature, and provide directions for empirical studies.

Keywords: health/healing environments, healthcare, literature review

THE ROLE OF EVIDENCE-BASED DESIGN
IN THE 21ST CENTURY HOSPITAL

Organizer: Zimring, Craig (Georgia Institute of
Technology) [Mini-Plenary]

The United States is entering one of the largest healthcare construction programs in its history, with a projected \$20 billion per year in construction by 2010. This will shape U.S. healthcare for a generation. A large and growing body of clinical experience and of rigorous scientific evidence demonstrates that the design of the physical environment can play a significant role in improving the quality of healthcare. The physical environment can help increase safety, make healthcare more efficient and reduce stress for patients, families and caregivers. This has led to a growing practice of evidence-based design (EBD), where design decisions are based on research evidence and outcomes are rigorously evaluated. EBD is affecting billions of dollars of construction. In this symposium, jointly sponsored by the Center for Health Design and the Robert Wood Johnson Foundation, Craig Zimring (Georgia Institute of Technology) will summarize the research literature linking design to safety and quality and will discuss the emerging opportunities for research; Derek Parker (Director at Anshen + Allen Architects) will discuss how evidence is revolutionizing healthcare design, including the business case for improved design; Cheryl Herbert (President of Dublin Methodist Hospital, OhioHealth) will discuss how evidence-based design was used in an innovative new hospital project and will explore both the strengths and challenges of using evidence in actual significant design projects.

Keywords: construction, health/healing environments, healthcare

WHEN THE HOSPITAL IS YOUR COMMUNITY:
ENVISIONING HEALING GARDENS
WITH THE CULTURAL PARADIGM

Lee, Sungkyung (University of Illinois at Urbana
Champaign) [Paper]

This study reframes the implications of hospital gardens in the context of community space. Previous research on healing gardens has remained in the empirical and analytical research paradigms and has been primarily concerned with psychological benefits, such as relief from physical symptoms, stress reduction, improvement in the overall sense of well-being, and positive mood shifts (Kaplan, 1989; Ulrich, 1984, 1991; Marcus et al., 1995). Although this research demonstrates the psychological benefits of healing gardens, I contend that most of the effects associated with healing gardens can be applied to any kind of natural settings and do not address some of the particular aspects of garden spaces when set in hospital and institutional contexts. In addition, the current definition of healing gardens is very vague in terms of specifying spatial layouts and forms. This paper introduces a reinterpretation of the hospital as a lived space by patients. The study reconsiders the hospital as a cultural landscape and examines the implications of the social aspect of hospital environments by patients’ everyday use. The research methods combine interviews, observations, and design analysis. The findings show that corridors in hospitals acted in many ways as streets in communities serving functions as traffic circulation, pedestrian movement, and socialization. My analysis depicts the hospital as a living community where patients continue their limited everyday life. Further, my healing garden design shows the process of implementing the findings to the design development. Ultimately, this paper promotes designer’s creativity and active involvement to understand the everyday use of the hospital within the designing process of healing gardens.

Keywords: health/healing environments, spatial, behavior, stress, landscape

ANALYSIS OF CHARACTERISTICS OF
SHARED SPACES IN RECENTLY BUILT
APARTMENT COMPLEXES IN
SEOUL, KOREA

THEMATIC
ABSTRACTS

Housing

Kim, Minsoo; Choi, Jiin; Yim, Jungeun; Lee, Soy-
oung (Yonsei University, Seoul, Korea) and Shin,
Yeonsub (Manager, Posco Engineering and Con-
struction Company, Seoul, Korea) [Poster]

With growth of interest in quality of living and well-being in urban life, the importance of quality community environments in apartment complexes has grown tremendously. Since 2004, some apartment complex builders have incorporated numerous shared-spaces for leisure activities into their projects. These shared-spaces for leisure activities are based on eco-house design strategies which are distinctively different from previous apartment complex building approaches. The purpose of this study is to investigate the characteristics of these shared spaces – overall layout, composition, proportion of the size of each shared space to the individual unit size as well as the entire complex size in order to understand the context of shared space planning and suggest planning guidelines. For this study, 25 apartment complexes, which were built after 2000 by top ten ranked builders in Korea, were selected. After 2000, apartment builders adopted various marketing strategies to differentiate their projects and actively incorporated numerous community centers known as shared spaces. Data was collected through site visits and field research. Our research determined that a great deal of weight was given to leisure life in these apartment complexes in terms size and type of shared spaces. Indoor exercise rooms were the largest portion of the shared space within apartment complexes. Shared spaces for outdoor activities and gardening were designed especially to reflect environment-friendly concepts. Residents preferred to have a shared

spaces located together rather than scattered across the apartment complex. With a growing interest in health, apartment builders have introduced more health oriented shared spaces such as community saunas, spas, and health diagnostic systems than before. In order to effectively and efficiently manage these shared spaces, it is important that the shared space facilities be in appropriate proportion to the size of apartment complex so that the facilities are affordable in terms of demand, budget and operating costs. For instance, multi-purpose educational rooms, day-care facilities, computer rooms with internet connections appeared only in apartment complexes which were large enough to have more than 1000 households. Therefore this study suggests shared space planning be based on demands of residents and managerial planning.

Keywords: housing, apartments, multi-family housing, leisure spaces, international approaches

AN ANALYSIS OF ECO-FRIENDLY
FEATURES IN MULTIFAMILY HOUSING

Lee, Yeunsook; Lee, Sungmi (Yonsei University, Korea); Lee, Hyunjeong (The Housing and Urban Research Institute of the Korean National Housing Corporation, Korea); Cho, Jiyeon (Institute of Millennium Environmental Design and Research, Yonsei University, Korea); and Kwak, Yoonjung (Yonsei University, Seoul, Korea) [Poster]

The housing supply in Korea has satisfactorily met the demand throughout the last quarter of the twentieth century, and demographic, social and economic demands have been met. All of these circumstances serve as a significant foundation for raising environmental issues. Many applications of new concepts of environmentalism to housing are obvious and notable, and one of the most notable strategies is environmental

friendliness that has proven to be a viable solution for the relation between human beings and environment. In fact, the awareness of eco-friendliness has been emerging from the dawn of the 21st century, and the certification and guidelines for eco-friendly housing have been encouraged by the public sector. Yet, these eco-friendly features have not been examined or evaluated by residents, the users of this specially designed housing. This study examines multi-family housing that has recently been developed with the idea of ecological friendliness, and investigates the residents attitudes toward and their preferences for these features. Three multi-family housing complexes were selected for this study; all three apartments were developed by the City of Seoul over the past several years. Although these housing complexes mainly accommodate middle-income families, their main planning concept aligns with social integration, and rental housing for low-income families is situated on the site. Each unit on the developments are small-sized (85m² or less), and the complexes are beautifully designed, enhanced by numerous environmentally friendly features. This research utilizes in-depth interviews and site visits. Seven residents in the studied housing developments participate in this study. The analytical tool used in the interview process was reviewed and modified by a panel of professionals; it included five aspects of ecologically friendliness: residential comfort, energy saving, open housing, sufficient storage, and safety/security. The respondents pointed out that south-facing housing in relation to residential comfort was most favorable, especially since the amount of daylight received was related to heating cost during winter and was often adequate in achieving a degree of indoor comfort without mechanical heating assistance. With regard to energy-saving, water-saving features and dehydrator of food waste were identified as the most used features. The respondents mention that the use of the dehydrator wastes more water, so water-saving features installed in home don t attain their inherent purposes. As for open housing-related features, flexibility in spatial configuration is pivotal, especially small-sized housing units. The results indicate that efficient storage is regarded as important, and easy access to storage space affects its actual use. With respect to safety and security, the

research findings revealed a preference for non-slippery flooring in bathroom. Although since in inception of building high-rise apartments in Korea there have not been any serious problems or dangers, the respondents stayed vigilant and recommend some active measures to combat their safety and security concerns. As the lifestyles vary, even among family members, residents often changed the interior finishes or furnishings in each unit, and the spatial configuration was often renovated. The respondents suggested that the preference of families who are prospective residents need to be reflected in design, and that the ability to customize was more likely to be viewed as eco-friendly.

Keywords: ecological friendliness, eco-friendly housing features, multi-family housing, apartments

THEMATIC
ABSTRACTS

Housing

ANALYSIS OF RESEARCH TRENDS
REGARDING SHARED-SPACES IN
APARTMENT COMPLEXES IN KOREA

Yim, Jungeun; Lee, Yeunsook; Lee, SoYoung; and
Lee, Junghwa (Yonsei University, Seoul, Korea)
[Poster]

It has recognized that shared spaces play an important role in promoting social relationships and building sense of community. Shared space can also provide high rise apartment complexes with various ecological and sustainable environmental settings. Gradual changes in types, size, and function of shared spaces within apartment complexes have taken place for the last couple of decades in Korea. The purpose of this study was to systematically analyze empirical studies of shared spaces in multi-family housing in Korea, in an effort to discover the role of the current research in streaming shared space planning and understanding the social background. For this study a content analysis of numerous research sources was conducted. Articles, books, thesis and dissertation published on this topic from 1985 to 2004 were analyzed. Use of a library database system keyword search allowed for publications to be systematically selected. Contents from the research publications were classified according to the following

categories 1) community layout, accessibility, and spatial arrangement, 2) residents preference and satisfaction with shared spaces, and 3) various problems arising in use of shared spaces. In addition, research questions and problems were chronically placed to trace trends. The findings about trends in shared space offered an in-depth understanding of needs of society, community, and residents. In addition, the results of this study revealed problems among existing shared spaces and usage patterns according to specific periods. In the early stages, shared spaces were not considered to be actually shared by the community but were referred to as just amenities. Accessibility emerged as one of the most important characteristics of shared spaces. In later periods, shared spaces were seen as places where residents engaged in community activities. Building sense of community and supporting functions for living in community had become more important. These research findings indicated that in providing shared spaces it was not merely effective to make a physical setting but that social, institutional, and organizational systems needed to be provided or accommodated as well. The findings of this study suggest numerous future research issues as well as shared space planning strategies.

Keywords: multi-family housing, apartments, shared spaces, content analysis

THE BATHROOM AS CATALYST AND THE STORY BEHIND IT

Morales, Ernesto (Université de Montréal, Canada) [Paper]

The bathroom in modern homes occupies a higher status in the daily life of private households than in years gone by, and has the capability of shifting meanings depending on the purpose for which the space is being used. Drawing on various structural concepts of disciplines such as sociology, psychological anthropology, material culture studies and semiotics, this qualitative research explores the meanings attached to the contemporary bathroom. A study of the habits and rituals associated with use of the space is based on the

theory of narratology, which provides an interpretative tool for identifying the various meanings of the bathroom. A brief review of relevant narratological concepts is provided. This theory is applied to an exploration of the narrative value of the space to eight different cases, resulting in a significant contribution to understanding the diverse meanings of the contemporary bathroom. The catalyst property of the space is identified experientially: the bathroom can accelerate the user's achievement of states of relaxation or stimulation of the senses. This makes the contemporary bathroom a multi-faceted space with many different meanings.

Keywords: bathroom, narratology, meaning, experience, catalyst

BEYOND CONFLICT: CONTEXTUALIZING SARACOGLU HOUSING

Guney, Yasemin Ince (Balikesir University, Turkey) [Paper]

The introduction of apartment living was the factor that most affected the social and spatial transformation of Turkish domestic culture after the establishment of the Republic in 1923. Even though started as a response to desperate housing shortage in the new capital Ankara, apartment living soon became popular. By 1931, Turkish architects, such as Abdullah Ziya, were advocating the importance of rationality in the twentieth century and apartment life as the modern way of life appropriate to this century. They also had the opportunity to design these new domestic spaces in an environment where a number of international designers were invited by the new government to help construct a modern, i.e. western, image for the new nation. To invite foreign designers was a common practice since 1839 reforms of the Ottoman Empire to westernize. An Italian architect Raimondo D'Aronco was even appointed as the chief architect of the Empire from 1896 till 1908. The international designers invited during the early republican period were not only commissioned to design almost all of the public art and administrative buildings in Ankara but they also had the chance

to teach at the architecture schools of the neophyte Republic. German architect Paul Bonatz was one of these designers who were asked to stay and work as an educator, consultant, and architect when he came to Ankara in 1943 for the opening of the New German Architecture Exhibition. When, in 1944, he was commissioned to design Saracoglu Housing complex for state employees in Ankara – the first time a foreign architect was appointed for a residential project – it prompted Turkish architects to protest. His designs were not only criticized for their lack of consideration for the Turkish economy of the period but also for the inappropriateness of their spatial organization for the Turkish way of family life. This research, first, presents the syntactical aspects of Bonatz's designs examined using space syntax methodology. Secondly, it contextualizes his designs and discusses their influence on the spatial evolution of Ankara apartments. For this aim the research makes use of the author's earlier studies (Guney 2005a, 2005b) that examined the social and spatial evolution of apartment houses in Ankara, all designed by Turkish architects and covering the period from the 1920s till the end of the 1990s. As the conclusion, the paper argues that even though Saracoglu Housing complex at first surfaced a negative reaction from the Turkish architects, one can also see its influence on the spatial organization of later apartment designs.

Keywords: Housing, apartment living, space syntax

COMPARATIVE STUDY OF HOUSE SUPPLIER'S DIFFERENTIATION STRATEGY AMONG CONSUMER'S DEMANDS IN KOREA

Lee, Sungmi; Lee, Yeunsook; and Kim, Minsoo (Yonsei University, Korea) [Poster]

Since the Korean government's constant policy on housing supply in the 90 s, Korea has experienced quantitative sufficiency in housing, and consumer's demands for housing quality have been achieved. This study compares consumer's demands with house suppliers differentiation strategies for improve buying power. The

study used small group workshops, so that the participants would be able to share their living experiences of apartment dwelling and to discuss improvements made within the standard 4-bay floor plans available. These small group workshops aided researchers in understanding residents requirements and problems with the process of making betterments within the housing floor plan of he unit in which they were living. Nine individuals participated in these workshops. To draw out specific opinions, the workshops were limited to 3 participants. A content analysis of different planning concepts used by housing suppliers were analyzed from articles written between 1994 to 2003 in 5 major domestic daily newspapers. Apartment, strategy, and floor plan were used as keywords, in addition to 31 planning components. Results of this study revealed that housing suppliers and consumers showed interests in seven specific categories in relation to housing floor plans openness in planning, privacy, enlargement of storage, flexibility, family space, utility space, transitional spaces. In the consumer's workshops, demands for ventilation and natural lighting were more emphasized. House suppliers, however, were inclined to provide lifestyle-focused items such as indoor gardens, home bars and family rooms. It is significant that this study showed practical points of view by comparing consumer's demands with house suppliers planning components. However, due to the research methodology, there were limits in showing diversity of consumers demands. Therefore further study on market segmentation based on consumers needs and wants is needed.

Keywords: apartments, multi-family housing, consumer demand

THE CONFLICTED AMERICAN DREAM: THE COSTS OF HOMEOWNERSHIP IN A PREDATORY MARKET

Dearborn, Lynne (University of Illinois – Urbana-Champaign) [Paper]

Thomas Jefferson's vision of citizen homeowners living on individual plots of land is integral to the

United State’s sense of itself as a democratic country (Wright, 1981). Today, homeownership is presented as the panacea for poor housing quality and limited wealth accumulation in minority households (Conley, 1999). Community development professionals also rely on increasing homeownership to stabilize distressed low-income and minority neighborhoods. Despite the history of discriminatory housing and lending policies and practices in the U.S., since 1990 there has been a push to increase minority homeownership through practices such as: modifications in underwriting, down payment assistance programs, and sub-prime lending (Schoenholtz & Stanton, 2001). The assumption that homeownership is best without regard to situation or condition underlies current housing policy. In the present push to increase homeownership, there is little discussion of the costs exacted from homebuyers with modest resources. With East St. Louis, Illinois, as the context, this paper uses qualitative data collected through interviews with county officials, lawyers, homeownership counselors, and minority victims of abusive lending practices, augmented by physical quality assessments of properties owned by low-income, minority homeowners, to address the questions: what are the costs for homebuyers of the current push to increase low-income and minority homeownership in the U.S. and what interventions could improve outcomes overall? These questions are particularly relevant to community development practice because much current redevelopment and housing policy promotes low-income and minority homeownership to address existing neighborhood problems as well as redress historical social and economic injustices. This paper builds on the scholarly discussion of community reinvestment, fair lending, and abusive and predatory mortgage practices provided by two recently published works: Credit to the Community, by Dan Immergluck and Why the Poor Pay More, edited by Gregory Squires. However, while these works provide a foundation, this study adds depth to the understanding of the impact of abusive and predatory lending on victims with regard to physical living conditions, and the physical, psychological, and economic health of individuals and households in targeted low-income and minority

neighborhoods. The study finds that while there are many potential benefits for low-income homeowners and the neighborhoods they reside in, community development professionals and policy makers would be wise to cautiously enact low-income homeowner-ship programs/policies. These programs are beneficial when bolstered by substantial homebuyer education and counseling, and further augmented by education and economic/job development programs.

Keywords: low-income, housing (single-family), neighborhood/community planning, city planning, case study

**CREATIVITY IN ADDRESSING
CONFLICTS IN DOMESTIC DWELLING**

Negreiros de Camargo, Erica (Sao Paulo University, Brazil) [Poster]

Conflicts found in everyday actions in regards to domestic dwelling are attributable both to permeation by the outside world of the private sphere and to the act of sharing a single space with other individuals. These conflicts result in a creative process of equilibrium-seeking which is intrinsic to the experience of domestic dwelling. The experiences of domestic dwelling that we collect throughout our lives comprise a system of personal information in the form of values and behavior patterns. These are expressed in the routine and essentially individual ways that we perceive and react to facts and conditions encountered in our domestic environments. Once inside our homes, we evoke this system through everyday actions and try to satisfy as far as possible our specific needs, expectations and aspirations in relation to our experience of domestic dwelling. We take the physical environment of our homes as the ideal place in which to legitimate this system: this is where we justify our self-expression, as revealed by the everyday application of values we have gained and nurtured throughout our lives, such as intimacy, privacy, territoriality, safety, comfort and aesthetics. Yet we are not able to carry out these individual patterns freely, because they

routinely conflict with various impediments. These can come either from the physical environment where our homes lies, where outside factors interfere with our privacy, or from incompatible values and interests between ourselves and those with whom we share our living space. Anytime we are prevented from or limited in applying our system of personal information in our domestic dwelling, we face situations of conflict which can be experienced internally and in relation to other people, as well as in the physical and emotional realms. Any attempts to regain equilibrium involve rethinking meanings and values that comprise our standard systems, in a move that reorders while still preserving their capacity as the keepers of our physical and emotional well-being. The conflict emerges precisely because of the difficulty we find in changing our patterns. In the quest to regain equilibrium through our interactions within the physical environment and with other individuals, alternatives to our formal behaviors and solutions emerge by means of a process that is clearly creative. Trough this process, we create new forms of dwelling which result from negotiating incompatibilities, changing the physical space, and designing new spaces – whether real or projected – as mechanisms for the defense of our identities. If these mechanisms fail we may even physically move away from the environment where we are experiencing this conflict. This paper argues that the creative process used to address our conflicts and restore our equilibrium, particularly in the face of situations that challenge our systems of personal information, is inherent to the human experience and therefore intrinsic to everyday domestic actions. We resort to creativity to free ourselves of the structures we have built from experiences throughout our lives and to regain our equilibrium, which is the ultimate goal of any wish we want fulfilled, work completed and problem solved.

Keywords: conflict, domestic experience, creativity, equilibrium

**DESIGN FOR PUBLIC SPACE
INTERACTION; MITIGATING CONFLICT
THROUGH DESIGN FOR EXPERIENCE
AND CULTURAL ERGONOMICS**

Brisby, Traci and Coleman, Jennifer (University of Calgary) [Poster]

In today’s world economy, ideas and designs from one culture are readily transplanted and implemented to another, often with little transformation. Land development is one area where this often the case, with foreign directed firms both financing and developing a project. Often these transplanted design solutions result in escalating existing conflicts and/or creating new ones. In this design project, theories from Industrial design and Ergonomics are explored to consider their potential to influence the qualities of interaction within public spaces; the design of public artifacts shall provide the avenue of potential influence. There are opportunities for the development of artifacts in public space as a means for mitigating conflict by encouraging interaction and creating a venue for developing a sense of community. Design for experience and cultural ergonomics come together to provide the theoretical direction for this project. Influence from Interactive Designers like Nathan Shedroff will open the dialogue with Design for Experience. Where Shedroff’s ideas mainly focus on interactivity and design for experience in the context of the virtual world, this project is concerned with the physical. Correlations with Cultural Ergonomics will spring board from Michael Kaplan’s work, focusing on the neighborhood environment rather than the work environment. The site of this project is an actual residential development in New Providence, Bahamas. The project makes reference to University of Calgary, Alumni Glen Hougan’s work, ‘Product Adaptation for the Chinese – a Framework and Guide’, with his framework providing direction in the context of the Bahamas.

*DESIRED AND ACHIEVED PRIVACY IN
INTERGENERATIONAL HOMES*

*Gale, Amanda (Eastern Michigan University), and
Park, Nam-Kyu (Michigan State University) [Pa-
per]*

The growing population of persons ages 65 years and older is projected to reach 71.5 million by the year 2030 (Administration on Aging, 2003). Within this population family members will act as the primary caregiver (Stewart-Pollack & Menconi, 2005), suggesting an increase in intergenerational homes. This study’s framework is based on Altman’s (1975) theory of privacy. The purpose of this study is to understand how the desired level of privacy differs from the achieved level of privacy for an aging parent and an adult child in an intergenerational home. This study aimed to develop exploratory information regarding intergenerational home environments. Each inter-generational family was considered uniquely by the use of case studies. A mainly qualitative method was used permitting the readers to hear the participants through their own words. Descriptive statistics were also utilized to support the conclusion drawn. The total sample size consisted of ten families, 10 aging parents and 10 adult children, found in the greater Mid-Michigan area. Personal Semi-structured interviews were conducted separately with each aging parent and adult child. The findings show 70% of the aging parents and adult children in the sample attained their desired level of privacy. In regard to actual level of privacy, 30% of the aging parents from the sample cited feeling isolated from having too much privacy, while 30% of the adult children cited feeling crowded from having too little privacy. This study provided designers and others interested in intergenerational family’s home environment information about how the home is used to achieve and maintain privacy. Additionally this study can act as a platform for further research in the interdisciplinary area of home environments for the aging.

*ECO-FRIENDLY PLANNING FEATURES
OF APARTMENT HOUSING COMPLEXES
AND THE ENVIRONMENTAL ATTITUDE
OF THE RESIDENTS IN KOREA*

*Lee, Jeeyoung; Lee, Yuensook; Lee, Soojin; and Oh,
Soyeon (Yonsei University, Seoul, Korea) [Poster]*

Environmental attitude can be defined as “a learned predisposition to respond [in a] consistently favorable or unfavorable manner with respect to the environment”. Understanding and measuring environmental attitudes have become gradually significant as the number of environmental conflicts have increased throughout Korea and the world. Paralleling an increase in environmental conflicts is the growing trend toward greater public involvement in how these conflicts are handled. It was not until the last decade that not only our nation’s policy agenda, but also environmental issues began to receive attention in the field of housing industry. Growing acknowledgment of the necessity of achieving more sustainable forms of housing development gave credence to underlying view that has guided our relationship to the physical environment. This study explores the environmental attitude of eco-friendly apartment residents. To do so, the awareness of important environmental category and eco-friendly planning features and priorities for spending were identified. A questionnaire survey was employed. The questionnaire consisted of forty-four items, categorized by three dimensions such as earth environment, neighborhood environment, and interior environment. Those three dimensions referred to the green building certification systems of the UK, Japan and Korea. The respondents were men and women older than 20 years, all residents of an eco-friendly apartment complex. Nine different complexes were selected. One hundred and twelve cases were identified for statistical data analysis using SPSS for Win 12.0 program. Results are as follows: First, responses revealed that the residents considered interior and earth environment more importantly than neighborhood environment. The most significantly perceived item in earth environment category was

conservative development in regards to preservation of existing natural resources. For the neighborhood environment category, composition of sufficient green spaces in neighborhood environment were identified as most important. Soundproof construction between floor levels in interior environment was regarded as the most important items in that category. Secondly, the residents who thought eco-friendly planning features were most important were women, university graduates aged between 20’s and 30’s who earned \$4000 of monthly income. Thirdly, the residents demonstrated a willingness to pay for conservative development which would a) preserve natural resources, b) guarantee of pleasantness and sunshine in their neighborhood environment and c) offer soundproof construction between floor levels. Even though environmental issues began to achieve a position in our nation's policy agenda during the last decade, the major problems receiving attention tend to be limited to air and water pollution, loss of aesthetic values, and resource (especially energy) conservation., not on the planning features of built environment, especially housing. Specific eco-friendly planning features are presented based upon research results.

Keywords: eco-friendly, environmental attitude, planning features

*EDRA’S RESIDENTIAL ENVIRONMENTS
NETWORK – SCOPE, ROLE, AND FUTURE*

*Organizer: Hadjiyanni, Tasoulla (University of
Minnesota) Participants: Ahrentzen, Sherry (Arizona State University); Hadjiyanni, Tasoulla (University of Minnesota); Mazumdar, Sanjoy (University of California, Irvine); Null, Roberta (Professor Emeritus University of Miami); Pontikis, Kyriakos (Intercollege, Cyprus); Robinson, Julia (University of Minnesota); and Snowdon, Suzanne (Washington State University) [Workshop/Working Group]*

There appears to be a wide variety of backgrounds, interests, and concerns that falls under the umbrella of EDRA’s Residential Environments Network (REN).

Members range from students to practitioners, educated in fields like design and anthropology. Members’ interests can be anywhere from culture to universal design as they relate to suburban developments and housing for special populations, both on a national and international level. As a result, many of REN’s members are also committed to other EDRA networks. Such diversity among the Network members brings both challenges and opportunities. Some of the challenges relate to fostering a sense of belonging by finding common links among the members in a way that engenders collaboration and interdisciplinary ventures. Inherent in this diversity is also the opportunity to explore issues surrounding residential environments through theories and methodologies not used for that purpose before. As it currently stands though, members of the Network have limited understanding of what the Network can do and how it can benefit their endeavors. Understanding who the members are, where do they come from, and why along with exploring ways by which to connect with other EDRA networks while maintaining REN’s separate identity are central to the Network’s potential to enact change. The proposed workshop is thereby perceived as an opportunity for Network members and others interested in residential environments to gather and critically think about the Network’s scope and role in an effort to frame a trajectory for the Network’s future. The workshop will begin with member-panelists sharing brief insights on how their different areas of expertise or professional affiliations relate to residential environments: Sherry Ahrentzen on affordability and sustainability; Tasoulla Hadjiyanni on meaning and identity; Sanjoy Mazumdar regarding cultural issues; Roberta Null on universal design; Kyriakos Pontikis in regards to housing construction; Julia Robinson on teaching; and Suzanne Snowdon speaking on neighborhood and community design.

Having these introductions as a base and drawing from the experience of its audience on researching, teaching, and practicing in residential environments, the discussion will concentrate on answering questions like: ‘What constitutes residential environments?’, ‘What are the backgrounds of the Network’s members?’, ‘How can the Network reach diverse audi-

ences?’, and ‘What kind of information can be disseminated via the Network’s resources?’. Participants will engage in an exploration of the Network’s present role and strategize about the Network’s future role. Specific outcomes expected of this workshop include:

- 1) Drafts of the Network’s mission and goals.
- 2) A list of areas and types of positions/affiliations that are currently part of the Network. And,
- 3) A list of areas and types of positions/affiliations that should be part of the Network.

Armed with the above information, members of the Network can:

- 1) Focus/expand their research, teaching, and service endeavors, and
- 2) Form collaborations between academics, practitioners, and policy-makers they might not have been previously considered.

With these synergistic opportunities in mind, workshop participants can devise ways to better respond to issues concerning residential environments.

Keywords: Housing, interdisciplinary, curriculum development, professional practice, design review.

EFFECT OF DIRECT RAYS FROM THE SUN THROUGH A WINDOW ON THE SENSE OF RELAXATION

Barazawa, Natsuki and Hanyu, Kazunori (Nihon University, Japan) [Poster]

The role of lighting in rooms has been changing. In addition to enough brightness to work, fitting to the situation where lights are set is required for lighting. In an office, a classroom and a library, where people do mainly visual work (reading or writing) lighting should provide enough brightness. On the other hand, in residential spaces brightness is not always required because it could prevent residents from being relaxed there. An experiment controlling ceiling and wall illumination shows that control of wall illumination was more effective than the control of ceiling illumination to raise raters’ satisfaction in relaxation spaces (Ishida and Inoue, 2001). In addition, a study exam-

ining the distribution of liked brightness shows that heterogeneous illumination does not linearly heighten the evaluation of “relaxation”: there is an optimal heterogeneity in relaxation (Lee, Ishihara, Hirate, and Yasuoka, 1997). Most studies on room lighting focus on artificial illumination, but in real situations, the sunlight that comes from a window accounts for the largest ratio of source of light. Thus, sunlight is an important element to investigate the lighting of residence spaces during the day. One study reveals that direct rays from the sun through a window make individuals feel strongly refreshed and that as illumination rises it provokes stronger feeling of refreshment (Kawai and Ishida, 2002). In the present study I examine the effect of light from a window on the relaxation feeling of a person, especially focusing on the seasonal effect of light quality.

Keywords: relaxation, lighting design, residential

IMPACTS OF HUMIDIFICATION WITH AN AIR PURIFYING SUBSTANCE ON NEW HOUSE SYNDROME SYMPTOMS

Lee, Hyunjeong (The Housing and Urban Research Institute of the Korea National Housing Corporation, Korea); Lee, Yeunsook; Cho, Jiyeon; and Lee, Yoojin (Yonsei University, Seoul, Korea) [Poster]

Indoor air quality (IAQ) is often viewed as a by-product of industrialization that took place in the 20th century. The great attention to IAQ has been gained since 1980s, and led to numerous research studies that have mainly focused upon developed countries. As the development of residential environment in Korea enters into the process of qualitative growth, IAQ is regarded as one of the core issues in the society, and the research in relation to IAQ has been implemented until now only in the fields of engineering and medical science. It is widely known that the sources and effects of indoor air pollution have been various, and IAQ research with multidisciplinary approaches is required. Nevertheless, few research efforts are depend upon a socio-behavioral approach to identify intervening

measures and analyze resident choices in regards to IAQ. Many intervening measures are known, and some very relevant products are available on the market. It is significant to explore our behavioral approach to IAQ. The purpose of this study is to examine the use of an interactive measure of residents in apartments where air is purified with phytoncide (which is now available on the market), and to investigate residents self-reported effects of the air purifying substance on New House Syndrome (NHS) symptoms.

This study utilizes a field experiment with pre-test and post-test measures. A total of 87 test subjects from 32 households with NHS were drawn via internet, and participation was solely voluntary. The participants receive and use their air purifying substance, and were asked to use it continuously for two weeks and identify any self-reported symptoms before and after product use. The participants were required not to use any alternatives to reducing the NHS symptoms during this time period, and to fill out the survey form regarding the self-reported symptoms. The respondents who were favorably chosen were housewives who were more likely to spend much of their time at home than any others in the family. Most of the participants were full-time housewives with college degrees. The family size ranged between two and three persons. Before using the air purifying substance, the participants suffered from a variety of NHS symptoms itchy eye, runny nose, skin dryness, skin irritation, coughing, headache, and the like. The research findings indicate that the respondents felt the air purification using phytoncide was effective in alleviating their NHS symptoms. These responses were statistically significant. The participants reported that the use of the air purification system produced positive impacts on their daily life. Further research is needed that compares this group with those only using humidifiers and to evaluate mid-term and long-term use of the air purification products and their effectiveness. Given the results, this intervening measure serves as an alternative that reduces and helps to alleviate NHS symptoms in circumstances where spatial configuration or physical change is not allowed. With the growing concern of indoor air quality and the increasing number of newly built houses, NHS is

an important issue, and the choice of interventions adopted by residents mainly depends upon their benefit and other characteristics. It is critical to scientifically evaluate each intervention and its impacts on adverse health conditions.

Keywords: indoor air quality, new house syndrome, air purification, residential environments

IS COHOUSING’S PROMISE OF A SENSE OF COMMUNITY MORE LIKE SOCIAL CHANGE?

Torres-Antonini, Maruja (Iowa State University) [Paper]

Cohousing is one solution that has been offered to solve the misfit between current housing and social patterns (Weisman, 1992). Though conceived as a practical strategy to solve everyday problems within the neighborhood, cohousing attempts to recreate a “sense of community,” and in doing so, takes a step in the direction of social change. The cohousing approach has organizational, procedural, and physical prescriptions including intentionality, democratic inclusion of residents, and development of a neighborhood support network; strong resident participation and community self-governance; and subscription to “intentional neighborhood design” guidelines fostering social and environmental sustainability (McCamant & Durrett, 1984). A two-year qualitative, participatory study of Lake Claire Commons, a cohousing community located in Atlanta, was the core of a dissertation research inscribed in the action research process initiated by the cohousing residents. Observed and reported behaviors representing key components of a sense of community were contrasted with graphic and written data on the physical design of the community and interpreted in light of environmental behavior concepts, leading to validation of the hypothesis that in cohousing, lifestyle aspirations of the residents fit tightly with the shape of their built environment. However, by showing disparity in effect each of the neighborhood design features had

on delivering the cohousing promise – with density, inward-facing layouts, pedestrian circulation and the existence of a common house generating the necessary affordances for social interaction but also setting stage for a range of privacy conflicts – the study confirmed intentionality as being central to the cohousing model. The Lake Claire study suggested that residents derive their sense of community from having a physical setting that addresses shared environmental and social values, but also from the local community taking on many of the roles traditionally assigned to the family, with day-to-day resident interactions involving mutual help, participation in community management, and conflict resolution through consensus decision-making. These behaviors suggest that residents partake in a favor bank that builds social capital, gain personal empowerment, and embrace voluntary simplicity ideals. Dissemination of the cohousing model over the past twenty years allows to question that even if individual cohousing communities are not expressly ideological or political (Scanzoni, 2000), their collective mission to “build community one neighborhood at a time” carries the implicit intent, and the potential, to propagate some small-scale, localized forms of social change. Questions arise as to whether the personal and collective benefits had from a sense of community can be infused to the larger society; whether the bottoms-up process and personal empowerment had in cohousing tend to subvert traditional social structures; and whether cohousing represents the spearhead of a movement of purposeful action toward social and environmental health. While researchers ponder these issues, cohousing residents keep working on the idea that individuals are accountable for shaping the domestic environment to ensure the well-being of theirs and future generations.

Keywords: social issues, housing, neighborhood, action research, cohousing

**McMANSIONS AND CONFLICT: THE
REGULATION OF SUPER-SIZED HOUSES**

Nasar, Jack; Evans-Cowley, Jennifer S.; Mantero, Vicente (*The Ohio State University*) [Paper]

In the U.S., house sizes have grown, and the average household size and lot size has dropped (National Association of Home Builders, 2003; US Census, 2003). The result: oversized houses labeled monster houses, starter castles, tract mansions, mega homes, and garage Mahals. We call them McMansions. They can be infill houses (tear downs and replacement, new houses on vacant lots or additions, much larger than the houses nearby) or greenfield developments of new oversized houses. We use 3,000 square feet or larger as representing a McMansion. In the U.S., that size is 30 percent larger than the average new house and larger than 80 percent of houses (U.S. Census, 2000).

Only one study (Szold, 2005) examined oversized houses. It examined three cities to find what regulations they used. Neighbors most often complained about the duration of the project, removal of vegetation, loss of smaller, older or historic homes, size and character of the house, and traffic and noise. We first reviewed articles in major newspapers, from 1998 to 2004, finding that 40 communities have adopted policies for McMansions, and another 33 considered adopting regulations, including controlling house size, lot coverage, design review, height controls).

For a more systematic review, we obtained responses from 103 U.S. cities (57 percent response rate) about the presence and extent of McMansion-type developments and on their approaches to regulation. The results revealed that many cities have McMan-sions but few had adopted regulations. Controls most often involved controls limiting building height, followed by those using design review, bulk and mass controls. Respondents judged the regulations as only moderately successful, although Floor Area Ratio and Design Review may work better than others. As McMansions continue to spread, communities will need to develop more effective mechanisms to control for their negative impacts.

Keywords: design review, neighborhood/ community planning, housing, urban design, city planning

Resources

National Association of Home Builders. (2002). Characteristics of new single-family homes (1987–2001). Retrieved June 25, 2004 from <http://www.nahb.org/generic.aspx?genericContentID=374§ionID=130&print=true>

Szold, T. S. (2005). Mansionization and Its Discontents: Planners and the Challenge of Regulating Monster Homes. *Journal of the American Planning Association* 71(2), 189–231.

US Census Bureau. (2003). Square footage of floor area in new one-family houses completed. Retrieved June 25, 2004 from <http://www.census.gov/const/C25Ann/sfttotalsqft.pdf>

**THE MYTH AND REALITY OF HOUSING
THE POOR THROUGH PUBLIC
PARTICIPATION IN DHAKA**

Nahiduzzaman, Kh (*Norwegian University of Science and Technology*); Baudouin, Axel (*Norwegian University of Science and Technology*) and Hasan, Musleh Uddin (*Khulna University, Bangladesh*) [Paper]

In response to the increased rate of urbanization, RAJUK (Rajdhani Unnnayan Kartripakkhya), a capital development authority in Bangladesh, initiated a project adopting the state-of-the-art spatial approach to growth as a strategy in its capacity as the executive body responsible for the preparation and implementation of the Dhaka Metropolitan Development Plan (DMDP). In recognition of the importance of the plan and in order to increase its implementability, public participation was considered one of the most significant features in the DMDP. Further, public participation was considered an inevitable part

of the consideration of planning standards, including recommendations at each stage from Structure Plan (SP) to Detail Area Plan (DAP). By nature urban planning is a complex mix of socio-economic and political phenomena which involves many theoretical aspects and at the same time there are associated multifaceted factors in its implementation. In the past there have been many efforts at planning and managing the urban areas in Dhaka, yet in most cases these efforts were focused on planning without consideration of the rapid changes taking place in socio-economic contexts, the strength and capacity of the public agencies concerned, or of the resources required. This paper is an assessment of the extent of inclusion of the public voice in the form of participation in the DAP, which is a reality on the ground. The DAP is an ongoing project, and based on a survey and interviews in the field this paper is an endeavour to identify the differences between theoretical practices as outlined in the DMDP and the actual situation.

Keywords: public participation, structure plan, urban area plan, detail area plan

**RE-THINKING CONSUMERISM –
MATERIAL POSSESSIONS AND IDENTITY
CONSTRUCTION IN RESIDENTIAL
ENVIRONMENTS**

Hadjiyanni, Tasoulla (*University of Minnesota*) [Paper]

According to the National Retail Federation, this Halloween, consumers, including both children and adults, are expected to spend an average of \$43.57 on everything from costumes to salt-and-pepper shakers. Such spending patterns are to many an indication of American society’s consumeristic impulses. Interviews with 15 Midwest families however, revealed the role of seasonal decorations and material possessions in the construction of identities, such as national, religious, family, and individual identity. Designers who are cognizant of how post 9/11, time-starved, and picture saturated families

use consumerism to build intense experiences that create memories and identity definition can respond to this conflict with supportive design solutions. The interviews were undertaken in the homes of family and friends of third-year architecture students at the University of Minnesota. Interviewees included mostly middle-class, married American women living in single-family houses in non-metropolitan areas of the Midwest. In addition to the interviews, students took photographs and documented the plans of houses. Questions asked included demographics; actual and preferred housing characteristics; space usage; meaning of home questions; and questions that aimed to uncover the relationship between residential design and identity facets, like ‘How do you feel your house reflects you as an American?’ and ‘Which, if any, of your personal values do you see your house expressing and how?’. Consumerism was identified as the driving force in American society by almost half of our interviewees. Decorations and material possessions, such as seasonal and religious items, travel memorabilia, and gifts were however, tied to meanings of home. Similarly, the ability to decorate and personalize the spaces they lived in contributed to feelings of independence, individuality, and freedom, privileges earned through their American nationality. In particular, seasonal decorations and related furniture/accessories included those celebrating the four seasons; national holidays like July 4; religious holidays, like Christmas and Easter; special days like Valentines, Halloween, and Thanksgiving as well as birthdays. They could be found in both exterior and interior spaces and they could take various forms, like the American flag flown in the front yard; the Christmas tree in the living room; special dinnerware in the dining room; towels in the bathrooms; and bed coverings in the bedrooms. Some were of a practical nature since they supported changes in the cooking, eating, and socializing patterns of families – barbeque grills and outdoor furniture used during the summer months for example. Others were simply decorative, like candle holders, pictures, and pillows. Storage for items not in use took place primarily in garages, attics, and basements. Almost half of our interviewees though were unsatisfied with the storage

of their homes, wishing for more flexibility and accessibility. Having lots of storage was for many an important characteristic of their ideal house. Amidst environmental concerns and rising construction costs, the challenge to designers concerned with enabling families to construct their sense of connectedness is finding creative storage solutions which are affordable and sustainable.

Keywords: Meaning, identity, programming, housing, interdisciplinary

**SELF-REPORTED SYMPTOMS OF
NEW HOUSE SYNDROME AND
RESIDENTS’ REPONSES**

*Chang, Jeehae (Yonsei University, Seoul, Korea);
Lee, Yeunsook (Yonsei University, Seoul, Korea);
Lee, Hyunjeong (The Housing and Urban Research
Institute of the Korea National Housing Corpora-
tion, Seoul, Korea); and Lee, Sunmin (Yonsei Uni-
versity, Seoul, Korea) [Poster]*

As the number of new housing has been notably increasing in the past years, the use of synthetic materials has caused residents moving into a new house to experience so-called New House Syndrome (NHS). The term New House Syndrome is similar to Sick Building Syndrome, a sickness caused by toxic materials in the air in newly constructed buildings. The clinical symptoms of NHS include itchiness, dizziness, headaches, skin irritation, and the degree varies according to the individual. Despite the increasing awareness of NHS, there have been only a few research studies on residents with NHS symptoms and the effectiveness their own interventions on their symptoms. The focus of this study is on the NHS symptoms reported by residents moving into newly built houses and interventions that they consider to be effective in alleviating their symptoms. This study utilizes the Environmental Stress Model as a conceptual framework to examine stressors as an impetus that initiates human well-being and coping. According to this model, the NHS is a stressor, and the outcome is residents behavioral choice in re-

sponse to their environmental constraints. A questionnaire survey was created for this study, and a total of 170 residents in 126 apartments (all newly built after 2001) in the Seoul Metropolitan Areas, participated in this research. The participants were randomly selected and divided into two comparison groups. Questions included when symptoms arose after moving, interior materials, lifestyle, adverse health effects, and interventive measures used to cope with NHS. More than half of the respondents were middle-aged, full-time housewives with college degree. Also, most of the households participating in this survey had either one or two children. The research findings show that the adverse health effects had become prominent among the residents shortly after moving into newly built houses. The majority of the residents in new houses reported discomfort and health complaints such as ocular, nasal, throat, cough, facial, dermal, headache, fatigue, dizziness, tiredness and difficulties in concentrating. The most common symptoms were eye irritation and odor annoyance. The results indicate that the NHS symptoms were discernible among family members who spend more time at home (e.g., full-time housewives, infants, and the elderly). For the families suffering from NHS, interior finishes (e.g., flooring, wall-papers, and furnishing) were composed of synthetic materials and toxic adhesives. Also, the respondents suffering from NHS pointed out that NHS symptoms had an influence on their daily lives, and that their lifestyle had changed (e.g., use of environmentally friendly materials, health-wise products, frequent ventilation, water purification system, air purifier, and indoor plants). Most of the respondents with NHS reported utilizing multiple interventions at the same time, and respondents were very conscious about hygiene and ventilation. Although many of the respondents were well aware of NHS, their interventions depend upon their lifestyle and vary according to the seriousness of the symptoms. Most of the respondents only sought intervening measures towards NHS which had an indirect and gradual effect on alleviating the symptoms, and only a limited number of the respondents sought clinical measures to cope with NHS.

Keywords: New House Syndrome, multi-family, apartments, indoor air quality

SPACE NORMS OF KOREAN HOUSEHOLDS

*Yang, Sehwa (University of Ulsan, Korea), and Oh,
Chanohk (Inje University, Korea) [Poster]*

In general, the space norms, which show the amount of space needed by a family, are measured through household size and family compositions. Furthermore, the families’ reactions on the appropriateness of space are cultural and psychological, depending on the overall conditions of households. This study examines the space norms of Korean households. In detail, the current conditions of space of Korean households were compared with Japanese and the US using the census data of population and housing for each country. The effects of space norms and deficits on propensity to move in Korea were analyzed using empirical data collected in 2002. According to the Census of Population and Housing in Korea, the housing size per household has increased from 41.4 in 1975 to 63.1 in 2000. The number of rooms per household has increased significantly from 2.3 in 1975 to 3.4 in 2000. This is a greater increasing rate than that of Japan or US. Although, the number of residents per room has decreased to a great extent from 2.3 in 1975 to 0.9 in 2000, this is still larger than the 0.59 from Japan or that of US. According to the analysis of empirical data, approximately 89.5% of the sample replied that having 3–4 bedrooms as the cultural space norm for an ordinary Korean household. A large number of respondents, 83.3% reported that they would prefer 3–4 bedrooms. The differences between norms and preferences can be considered as being caused by various constraints of households. Households actually having 3–4 bedrooms, however, were only 42.5%, and 52.1% of the sample reported experiencing space deficits. The result of a regression analysis of the propensity to move shows that young households are more likely to have space deficiencies. The propensity to move to larger housing areas was also apparent if the space provided was inadequate. One of the most significant indicators of housing qualities, space in a dwelling, influences a households housing satisfaction and most of the decision making related to housing. Furthermore, it also contributes for

the comfort of the housing. Recently, the size of ordinary housing units in Korea has increased constantly. This improvement in the living standard, caused by the economic development and the increase in household income, has augmented the preferences for spacious housing followed by a growth in space norms. Therefore, housing supply and policies based on such trends are needed for the efficient implementation.

Keywords: space norms, korean households, space deficits, propensity to move

TRANSFORMATION OF THE BUILT ENVIRONMENT AND VERNACULAR HOUSES

Yamacli, Rusen (Anadolu University, Turkey) {Paper}

In architectural design, there is a dialectic relationship between form \ indicators and context \ descriptions. At the outset, place is presented as a given, spontaneously experienced totality, and at the end it appears as a structured world, illuminated by the analysis of the aspects of space and character. The qualities, which traditionally distinguished human settlements, have been corrupted or have got irreparably lost. Reconstructed or new towns also look very different from the places of the past. In the historical environment, the physical characteristics that determine districts are thematic continuities. History can be a useful source for design ideas. The past, with its many wonderful examples of city development, can be a source of great inspiration. The historic cities have a lot of importance; it is “image quality” of a city. There are a lot of ancient human settlements in Anatolia, which belong to human heritage. The physical environment that surrounds this settlement found its identity with the myths of the cultures that lived on this land. The protection and conservation of the historical and natural environment is our responsibility for the sake of next generation. The concept of conservation has been found its identity in the international platform. The determination of conservation concept according to the interna-

tional rules is not enough for the conservation to be successful. Formulating a heritage policy, deciding which things and places to conserve, where and how to conserve them, what story to tell about them, and to whom, must depend on knowing what is perceived as valued heritage and why it is considered important. The future of heritage depends on its past.

Keywords: historical design, identity, participation, human activities and built environment

USING Q-SORT TO EVALUATE ENVIRONMENTAL COMPONENTS OF HOME

Webb, Jennifer; Smith, Korydon; and Miller, Nancy (University of Arkansas) [Poster]

People’s feelings and perceptions about the built environment are difficult to elicit. Not only are there almost limitless numbers of variables but the designer-researcher must also account for subjective interpretations of the end user or client. Data collection methods do not typically allow for these subjective qualities to be measured. The purpose of this poster presentation is to explain the q-sort method of data collection, provide an example of ongoing research project relative to the built environment, and allow participants an opportunity to experience the method for him/her. The q-sort method was developed by William Stephenson (1953) and was specifically intended to provide a rigorous model for researching the inherent subjectivity of opinions. McKeown and Thomas (1988) summarize the q-sort experience as the subject modeling “his or her subjective point of view on the issue at hand by rank-ordering the stimuli along a continuum defined by a condition of instruction.” This method has been used to better understand “aesthetic judgment, poetic interpretation, perceptions of organizational role, political attitudes, appraisals of health care, experiences of bereavement, perspectives on life,” etc. (Schmolck, 2005). In the q-sort method, the research subjects are presented with a range of comments or images for sorting. The comments/images are often replicated from previous

research in order to ground the topic at hand. The rank ordering is qualified by “most like” to “least like” or “most agree” to “least agree.” While sorting methods have been used in environmental research, the q-sort method has not been widely utilized. Recently, Demir (2005) used a triad method to investigate perceived differences in walking environments utilizing different scenarios. In this instance, the researcher forced the subjects to separate one image from a group of three and explain why they felt it was different from the remaining two images. Marsden (1999) most closely utilized the q-sort method, asking participants to sort images of assisted living facades along a continuum of most to least home-like. This poster will provide examples of a q-sort project relative to the concept of home. The project uses images selected from a set of photos generated by older adults and will illustrate the sorting process relative to “home-likeness.” Graphic images of the sorting process and the analysis of the results will be exhibited. A hands-on demonstration will provide participants with an opportunity to better understand the measurement of subjectivity.

Keywords: Meaning, place attachment, elderly, residential, qualitative research

NATURE & ECOLOGY

THE EVALUATION OF ROADSIDE VEGETATION: EFFECTS OF BACKGROUND AND OF VIEWPOINT OF PARTICIPANTS AS WALKERS

THEMATIC
ABSTRACTS

Nature &
Ecology

Saito, Yasutaka and Hanyu, Kazunori (Nihon University, Japan) [Poster].

Although trees and plants improve the impression of the landscape in general, not all of them are preferred. One study evaluated preference for a single tree form, concluding that trees having larger canopy were preferred. But in the real world, typically a number of trees can be found together as in woods and other planted group foliage. Among roadside vegetation, woods or groupings is often the case. When evaluating trees as roadside vegetation, background effect is rarely considered. Even if the same stimulus is evaluated, there can be a difference of opinion linked to the background and its effects on one’s impression. Roadside scenes were evaluated as more natural when vegetation was increased in the artificial background, but the increase of roadside vegetation often decreased one’s perception of naturalness in regards to selecting a natural background. The viewpoint of appraiser also influences the impression of scenes. Roadside vegetation was highly preferred by walkers because of its amenity, but less preferred by drivers because of its invisibility from a roadway. Few studies including the viewpoint of walkers have been conducted. In this study, we research the impression of roadside vegetation to examine the impact of background conditions and the viewpoint of walkers.

Keywords: assessment, outdoor environments, background, viewpoint as walkers

THE EVERYDAY: CONFLICT AND CONTEXT IN THE BUILT ENVIRONMENT

Dunn, Matthew (Louisiana State University) [Poster]

“The everyday is covered by a surface: that of modernity. News stories and the turbulent affectations of art, fashion, and event veil without ever eradicating the everyday blahs. Images, the cinema and television divert the everyday...at times offering up to it its own spectacle, or sometimes the spectacle of the distinctly no everyday: violence, death, catastrophe, the live of kings and stars – those who are led to believe defy everydayness.”

— Henri Lefebvre

The Everyday & Everydayness

Does it take a major catastrophic event, such as Hurricane Katrina, to understand the role that ‘the everyday’ takes in shaping and influencing our lives, practice, and the built environment? The everyday is both a set of potential influences for practice and a site/context/venue for practice. Our day to day activities and routines exist in the background of our minds and don’t become evident until they are disrupted and thrust to the foreground. Everything we have taken for granted becomes a major event in our lives. The everyday has been disrupted and shaken us out of our banality and boredom. Everything reverberates; the everyday has a prolonged and/or continuing effects. Steven Ross contends, “Seeing the world around you, rather than floating through it like a robot, alerts the eye, jolts the brain – and challenges society by shining the light of authentic discovery and awareness upon seemingly mundane aspects of social interaction, technology, and the built environment”. A disruption in the everyday allows the chance to analyze potentialities for transformation. Can we be self reflective,

broadening our interaction and participation within the spaces created by ‘the everyday’? Utility poles and billboards, sidewalks and driveways, vacant lots and parking lots – these everyday features have an significant architectural and spatial impact, influencing how a building relates to its context. As geographer Larry R. Ford argues, “Architectural histories and guide-books tell us surprisingly little about the character of American cities because they concentrate on buildings taken out of context, buildings divorced from space”. How do we design within the context of the everyday? How long does it take for the new and touted building or spaces to fade into our subconscious and become part of our ‘everyday’? Do buildings that stand out in our minds do so because they are so out of context in the built environment? How does the designer locate themselves within the potential influence and/or context of the everyday?

Keywords: aesthetics/meaning/assessment; architecture; interior design; anthropology/sociology/psychology; theory/conceptualization

LANDSCAPE AS MAKER OF IDENTITY: A CASE STUDY OF LE CORBUSIER’S CAPITOL COMPLEX IN CHANDIGARH, INDIA

Verma, Amitabh (University of Georgia) [Paper]

Of all the significant design movements to have emerged in the previous century, Modernism stands out from the others in the universal impact it has had in the fields of design and planning. Arising concomitantly with the world-changing political events of the 1930s, 40s, and 50s, Modernism forecast a new world order and a new way of life that would unify the various peoples of the world by its universal appeal and applicability. While the impact of Modernism on architecture requires no explanation, the import and meaning of Modernist planning remains a question unaddressed. Primarily, this stems from a paucity of new cities built according to these principles, which has meant a shortage of case studies which could be studied to assess the validity of the planning principles

and their success or failures. In light of this situation, Chandigarh, India, has an invaluable position as a rare example of a newborn city, laid out on a blank canvas, embodying the futuristic, egalitarian and functional ideals of Modernism. Further import is added by the fact that it was designed by no other than Le Corbusier, the foremost proponent of Modernism.

This paper examines the identity of Chandigarh today, in light of two conflicts – the first, between Modernist theories of planning and what we value today as context, and the second, the continuing process of the city trying to belong, to shed its air of foreign-ness, and the corresponding attempts to make it Indian. The problems that characterize the city are best embodied in the Capitol Complex, the administrative city center personally designed by Le Corbusier. Although the buildings are justly recognized as works of architectural genius, the complex as a whole fails to create the desired re-assuring environment for the common man, and fails to represent the unhindered access to the government, meant to characterize independent India. Instead the buildings are stark and overbearing, alien in form and the inhospitable plaza in which the buildings are situated conveys alienation and ‘unreachability’ rather than the desired outcome of access and intimacy. Neither the components nor the whole project contain anything Indian in nature.

This study seeks to provide a possible solution that would make the character of the city more Indian, as well as to ameliorate the built environment to engender a relationship with its citizens. It proposes a comprehensive landscape plan for the Capitol Complex and as a future corollary, one for the city. The suggested solution results came from a process of data collection and analysis that included site visits, onsite documentation, and interviews with residents and city planning officials, in addition to drawing on conventional published sources. The plan envisions using traditional Indian plans and native vegetation, which have historical, social, or religious connotations for the local community, to impart a unique and “Indian” character to the Capitol Complex, and to counteract the perceived foreignness of all buildings. Simultaneously, it achieves the greening of the paved plaza to create a welcoming environment for visitors which

THEMATIC
ABSTRACTS

Nature &
Ecology

will possibly transform its identity from an area that plays no part in the civic life of the average resident to a noteworthy recreational destination.

Keywords: international planning, nature and ecology, landscape architecture, case study

NEIGHBORHOOD SATISFACTION,
PHYSICAL & PERCEIVED
NATURALNESS & OPENNESS

Hur, Misun and Chun, Bumseok (*The Ohio State University*) [Paper]

This study is part of a broader conceptual model of neighborhood satisfaction. It centers on two variables: naturalness and openness. The study uses two kinds of measures: physical measures (using maps, satellite images, and GIS analysis); and perceived measures for those features and homeowner’s satisfaction from a 2004 survey of 837 respondents. The study has four hypotheses. First, the physical and perceived measures are correlated. Second, neighborhood satisfaction increases with the amount of vegetation coverage and open space in the neighborhood. Third, neighborhood satisfaction increases with perceived naturalness and openness. And fourth, neighborhood satisfaction increases as distance to an open space network decreases. Physical measures include vegetation cover rate within the neighborhood settings (from satellite images) and amount of open space and distance to the open space network in Franklin County, Ohio (from maps and aerial photos). The subjective measures include ratings of naturalness and openness, satisfaction with those elements and overall satisfaction with neighborhood (from 2004 Homeowner’s satisfaction survey data). The correlations between physical and perceived measures and the relationship between them and with the neighborhood satisfaction are analyzed. The results support the proposed hypotheses.

Keywords: physical measures, perceived measures, neighborhood satisfaction, naturalness, openness

PERSONAL CONFLICT TO DESIGN
MEDIA: LANDFORM AS A METAPHOR
FOR EXPERIENCE

Butler, Peter (*Iowa State University*) [Paper]

This project is a part of Landscape Architecture course #281, Investigating Landscape Constructions, a component of the Iowa State University landscape architecture program’s first semester. The first semester includes six weeks of travel from the headwaters of the Mississippi River to the Gulf of Mexico. This project builds on the students’ experiences of landform and topography while traveling from Lake Itasca, Minnesota to Burlington, Iowa. It seeks to expose students to the use of landform to communicate a personal story through landform design. The project investigates the psychological impacts and expressions (Kaplan and Kaplan, etc.) of a variety of landforms.

Students are required to keep a personal journal (LA 241) during the trip. With these journals as a guide, students designed a landscape that reflected their psychological journey. The landform regions that they experienced may be considered emotional or psychological landscapes. The gently rolling hills of the Iowan surface may elicit feelings of calm and tranquility; the hummocky hills of Minnesota may elicit feelings of emotional ups and downs; the severe bluffs of the Paleozoic Plateau may elicit feelings of danger, high energy and extreme highs and lows. These landform regions served as media in designing meaningful landscapes that communicated clearly their personal journey. Precedents for the design were extracted from the site visits during the travel portion of the semester. The whimsical abstraction of drumlins at Federal Courthouse Plaza in Minneapolis designed by Martha Schwartz; the elegance of the earthen mounds designed and built by Eastern Woodland Indians at Effigy Mounds National Monument; the rigid symmetry of the hardscape ziggurats at Loring Park Greenway by M. Paul Friedburg revealed to the students the potential for landform as a design media. Students found text from their travel journals that revealed three

moments of emotional transition. They chose three different landform regions that evoked the emotion that they felt at that time of the journey. They chose one cultural landform (mound, road, railroad, weir, dam, lock, levee, jetty, wing dam, etc.) for use in their designs. Students were required to connect the three landform models seamlessly. They defined a water course, as a path, through their landforms; and imagined themselves, or others, experiencing the place as a drop of water, flowing through the psychological landscape of their design, experiencing the landforms of the journey. Fragments of text taken from journals were presented as a part of their final composition. The landform projects were built of clay and recorded with ink on Mylar.

Keywords: environmental psychology, outdoor environments, qualitative research, landscape architecture, pedagogy

SITING A COSTAL TRAIL: A
PHENOMENOLOGICAL APPROACH

Kocher, Sara; Toker, Zeynep; and Di Leo, Jeanette (*Sara Kocher Consulting, San Louis Obispo, CA*) [Poster]

The purpose of this project is to explore alternatives for siting a coastal trail through San Luis Obispo County, California. This project was funded by San Luis Obispo County Parks in response to a statewide initiative to establish a coastal trail that stretches the entire length of the California coast. Considering the diversity of user groups for a coastal trail, the underlying approach in this research project was to rely on the experiences of a range of individuals representing user groups of equestrians, pedestrians and cyclists, along with resource managers. As the interpretive study of human experience, phenomenology is especially accommodating for this project, since phenomenological studies revisit the immediate experience of real-world situations to provide possibilities for emerging new patterns and structures (commonalities), which are inclusive

of bodily, intuitive, emotional and transpersonal dimensions. In-depth interviews integrated with base maps were used to allow informants to develop personal maps of the proposed trail. The base maps show existing roadways, gross land ownership, beaches and other coastal features for 100 miles of coastline at a scale of 1:36,000 in rural areas and 1:9000 in urban areas. Key informants were selected from each user group according to their roles in community advisory groups and land management agencies. Two key informants were identified and contacted in each group. The informants were invited to identify an ideal route on the map from the perspective of their mode of transportation and to describe how that might relate to the experiences of other potential user groups. In doing so, each informant was invited to revisit prior experiences of the coast. The geographic characteristics of the coastline represented on the base map provided the primary interview prompts. The informants were encouraged to identify relevant issues and to refer to personal experiences. Each interview lasted about two hours. Despite the diversity of experience, certain commonalities emerged. Since all user groups need staging areas, nodes of convergence surfaced with similar concerns. All interviewees referred to practical needs, aesthetic preferences and safety concerns related to the nodes of convergence. On the other hand, the pathways between these nodes diverged for different user groups in different parts of the trail. These divergences were related both to topographical and surface requirements and to beliefs about other user groups. As the final product of this research project, the idealized trails and quotations from the interviews were integrated on composite GIS maps. The composite maps are invaluable in communicating both the diversity of the user groups’ experiences and the commonalities emerging from them. The approach used in this research is an alternative form of public participation that uses geographic anchors to identify user preferences and to communicate potential resource conflicts.

Keywords: parks and recreation, coastal trail, equestrians, pedestrians, cyclists, phenomenology, mapping, resource management.

PARTICIPATORY DESIGN

BEYOND CONFLICT IN PARTICIPATORY COMMUNITY RESEARCH & DESIGN

THEMATIC
ABSTRACTS

Participatory
Design

Organizer: Manzo, Lynne (University of Washington). Panelists: Owens, Patsy Eubanks (University of California – Davis, CA); Rottle, Nancy (University of Washington, WA); Rula Awwad-Rafferty (University of Idaho); and Paxson, Lynn (University of Iowa, IA) [Workshop/Working Group]

This workshop will explore whether, how, and in what contexts participatory research and design strategies may be employed for positive community change. In particular we will examine the dynamics, strengths and unique dilemmas of citizen participation in a multicultural context. In what ways is participation used and how can community involvement facilitate community development efforts? How can we employ democratic processes and manage the conflicts that they may create? These questions can be even more pressing in the educational context, as community design studios and grounded action research projects must negotiate competing requirements, timeframes and overlapping but distinct purposes. Consequently, this workshop will consider the pedagogy of community research and design, and how they involve, create and transcend community politics and conflict. Panelists will discuss the dynamics of participation within their own projects, but the workshop aims to foster active participation and discussion by all attendees. Manzo will address the unique challenges and benefits of working with communities that are geographically and/or culturally distant from students’ own through discussion of two projects in the Pacific Northwest. One project focused on neighborhood revitalization efforts in Seattle’s Chinatown-International District, and the other focused on the development of affordable housing for Latino farmworkers in the Yakima Valley of Washington State. Together, these projects illustrate the complexities of participatory research and design

in a multicultural context, and the challenges of both university-community collaborations and research-design integration. Owens will discuss the redesign of a community park in a culturally diverse neighborhood in Davis, California. As a collaborative effort among the UC-Davis landscape architecture program, local high school students, a design office and the Parks Department, this project illustrates how a design studio can help introduce professionals to a community and introduce the community to a design project. Both university and high school students provided critical information to the consultants that led to a clearer understanding of community concerns and built trust in the consultants’ and park officials’ design objectives. Rottle will reflect on an interdisciplinary planning studio conducted through the University of Washington, which helped a community in Alaska to redefine its concerns and to find solutions that transcended polarized ideologies. While the “client” asked students to use traditional planning tools to manage growth pressures, in participatory workshops the class heard community concerns about threats to the town’s historical identity, agricultural lands, and perceived property rights. The students’ outsider status enabled them to propose innovative, conciliatory solutions that residents have embraced, potentially propelling the community beyond conflict. Awwad-Rafferty will highlight a community design and service studio project that became the catalyst for integration of instruction, scholarship, and outreach partnership between Shoshone Bannock tribes and the University of Idaho. The dynamic and powerful nature of this project afforded a canvas for alternative points of view, conflict, innovation, and application of ethics, paradigms, and processes. The research and design of a place to honor veterans and tribes has empowered both students and tribes, and facilitated culturally based problem solving and communication that followed on Shoban traditions of “learning” and “teaching.” Paxson will be the session discussant.

Keywords: participation, culture, social issues, preservation/restoration, children/youth, sustainability

COMMUNITY DESIGN: CONFLICTS BETWEEN THE DESIGNERS’ IDEOLOGY & COMMUNITY NEEDS

Ochieng, Crispino (Jomo Kenyatta University of Agriculture and Technology, Kenya) [Paper]

During the course of observing and participating in several community design projects for housing in Nairobi, Cape Town and two other towns, it became clear that the use of the term “community design” is a fallacy that does not reflect the actual source of decision-making ideas. In this paper it is being argued that although the community participants could believe their suggestions are being incorporated into the design, the truth of the matter is that the same information is carefully being used to arm-twist them and in the end to make them to adopt some of the designers’ original ideas. This is due to the designers’ *a priori* mindset that basically and continuously informs the design brief and is ultimately relied on by the designer. This knowledge serves to create an imprint on the community mind. To achieve this, several manipulation strategies are adopted. For example, important information that would nullify some of the suggestions by the community participants would be dropped during the discussion if and when necessary. In one case, when community participants floated a suggestion for a three-bedroom house, the designer tactfully brought in the information on the cost of constructing a conventional three-bedroom house. This was prohibitive, and he inquired how they would raise such a huge sum of money. In the end, the idea was dropped and finally a single-bedroom house was agreed on. The consensus was reached after several sessions. Being poor and at times not well informed, most of the community participants would in the end buy into the ideas of the designer without being aware of it.

Very soon, some of the shortcomings of this kind of approach in housing would become apparent. For

example, in one of the communities where 35 houses were being finished, a majority of the proposed beneficiaries told a researcher working in the community of their inability to repay the proposed cost of an individual house. They were self-employed and depended on unreliable income. They were afraid that in the end they could end up losing the houses. Soon the community-designed houses were set to become a source of stress. They also opined that the number of functional spaces did not effectively serve their needs.

This study concluded that community design in housing is both a farce and a wishful thinking. In community design, the designer is strongly influenced by the background that (s)he uses to manipulate the participants while pretending otherwise, rather than incorporating the community participant suggestions. In addition, it concluded that housing is a personal activity and would better be viewed at an individual level. Apart from some of the general functional needs that it serves, it first and foremost should serve the individual needs.

Keywords: Community, participation, a priori, housing, manipulation

EXPLORING SUBURBAN ALTERNATIVES WITH STUDENTS: WEST LIBERTY, IOWA

Hohmann, Heidi and Rogers, Carl (Iowa State University) [Paper]

Housing studios are a common component of landscape architecture curricula, and precepts of New Urbanism, sustainable landscape design, “smart growth,” and ecological conservation are routinely incorporated into student designs. However, such ideas are more difficult to incorporate into “real world” land subdivision. This paper examines a studio project based on a developer’s request to IDRO to provide ideas on innovatively and sensitively subdividing 80 acres of farmland in West Liberty, Iowa, a small town evolving into a bedroom community for adjacent Iowa City. The resulting 8-week student project provided the developer with multiple alterna-

THEMATIC
ABSTRACTS

Participatory
Design

tive visions of future land development. In order to avoid perceived conflicts with the local professional design community, the project emphasized idea generation and conceptual design in the scope of work, and students were encouraged to provide a full range of options for the 80 acres. This paper evaluates the project in two primary ways. First we examine its pedagogical effectiveness in educating students about the “real world” aspects of land subdivision, and we hope a student will participate in this presentation. Second, we examine the effect of the project on the client and determine how the project changed the ultimate course of the parcel’s development.

Keywords: participation, outdoor environments, qualitative research, landscape architecture, curriculum development

**FACTORS DETERMINING BEHAVIOR
DEALING WITH CONFLICT OF
OPINIONS IN DECISION MAKING FOR A
COMMUNITY DEVELOPMENT SCHEME**

Kumazawa, Takayuki (Okayama Prefectural University, Japan) [Poster]

The author proposed that a process in consensus building activity during participatory planning is a spiral transition, which has three steps spiraling from an abstract stage to a concrete stage of community development schemes. Then, the author demonstrated that the structure of each stage in the spiral transition process was similar, and the factors in each step were as follows: firstly, when people received information about the schemes, the factors were personal involvement, source expertise, and message effectiveness; secondly, when people advanced their understanding of the schemes, the factors were clarity of the scheme, individual benefit, social norms, assumed term within which a project was completed, and possibility of realizing a project; thirdly, when people discussed and evaluated the schemes together with others, the factors were individual benefit, social norms, embodiment of goals, and inclination towards the group. In

the following phase, opinions are integrated gradually or their views are widely different from each other.

This paper demonstrated factors required in behavior dealing with conflict of opinions in decision making for a community development scheme. The author held a workshop for local residents to discuss the prospects for the future of their neighborhood, established a hypothesis based on their evaluations after the workshop, and investigated factors using a design of experiment based on the hypothesis. The experiments were conducted by using a four-way layout ANOVA. Results demonstrated that factors in behavior dealing with conflict of opinions in decision making were profit, loss, framing effect, risk, and locus of control, and that the tendency on the aspect of profit was opposite to the tendency on the aspect of loss. In detail, on the aspect of profit, internal persons had positive evaluations on behavior dealing with large profit, positive framing effect, and avoidance to risk. On the other hand, on the aspect of loss, external persons had positive evaluations on behavior dealing with small loss profit, negative framing effect, and orientation to risk. A promoter of community planning should take profit, loss, framing effect, risk, and locus of control into consideration.

Keywords: Consensus building, subjective evaluation, conflict, decision making, community, participation

**IDENTIFYING CONFLICT:
VISUALIZING CHANGE**

Torres-MacDonald, MaryAlice and Shacklette, Ben (Texas Tech University) [Paper]

Community design involves a continual transformation of place. The process typically involves one of two directives. Either a community problem is identified and the design solution brings about a resolution that involves creating a new opportunity for positive change, or no specific problem is evident, but a clear opportunity exists through design. This paper focuses on the comparison between two projects in the West Texas cities of Canyon and Snyder as

a vehicle for understanding the resolution of conflict often experienced in community design. The two case studies demonstrate how traditional methods, such as the hand-built model and sketching, can be used in conjunction with computer generated imaging, ensuring community involvement and support across the broadest range possible. Media methods are explained in relation to the specific criteria addressed in each project. The projects were undertaken by the college’s Community Design Laboratory. An important academic element of the Laboratory is the ability to use the experience and lessons of previous projects to inform the solutions for future projects, thereby enhancing the learning experience for the students and advancing the intellectual knowledge base of the Laboratory. A variety of media are integral in the expression of architectural ideas, but the technique selected for visualization in community design is particularly critical as a communication tool with the potential to establish community consensus. The decisions made about the forms of graphic representation are critical to the resolution of the design problems identified. Community participants engage the new design and potential change in a variety of ways; therefore, a variety of visualization media can be utilized to enhance the participatory 2 process. Both projects involved a conflict in design identified by the community, its affects on the community’s identity, and utilized a variety of graphic techniques towards a proposed resolution. In each community, the process for community design was integral to the development of design solutions. The community participants were able to identify, in general terms, the design problems that needed resolution, but their ability to support the change was compromised by their inability to visually realize the potential change within the community’s context. The proliferation of digital technology constitutes a major turning point in pedagogy and practice, and yet traditional methods of representation still provide a viable means of visioning. Communication is a vital component of community-based design and the techniques presented represent an effort to provide not only a means for expressing the design solutions, but the ability to shape a graphic piece that would serve to “market” the community’s overall

assets and sense of pride, improve community awareness, and generate a consensus of support necessary to approve and fund the projects.

Keywords: architecture, participation, urban development, communication, neighborhood/ community planning

**LEARNING FROM CONFLICTS AND
DIFFERENCES IN A COMMUNITY
SERVICE STUDIO**

Hou, Jeffrey (University of Washington, Seattle); and Liao, Kuei-hsien (Mithun, WA) [Paper]

Service learning is widely recognized for generating multiple benefits for students and communities. They expose students to real-life problems and provide disadvantaged communities with needed assistance. From the pedagogical perspective, working with communities underserved by the design professions introduces students to alternative, democratic design practices and encourages civic responsibility (Feldman, 2004). Also, by exposing students to the social and political realities of community process, service learning studios provide students with unique opportunities to observe and consider conflicts and differences in the context of community design and planning. This paper examines how a recent summer field studio abroad addresses the complex conflicts and differences in the context of both local planning and cross-cultural studio learning. The studio took place in the town of Meinung, one of the most scenically and culturally distinct townships in Southern Taiwan. Since the early 1990s, local activists and residents have engaged in a grassroots movement against a proposed major dam, to be located only four kilometers away from the center of the township. After successfully defeating the dam project in 2000, the anti-dam activists have focused their attention on a number of community projects to address other pressing issues, such as rural economic development, social services, environmental protection, and preservation of history and culture. Unlike the overwhelming opposition against the dam, these

community projects often face conflicting interests and values among community stakeholders as well as outside professionals and funding agencies. In summer 2005, a team of faculty and students from University of Washington was invited to conduct a month-long design and planning studio in Meinung to assist the local activists in the challenging planning process. This paper examines the multiple conflicts and differences facing the field studio, including those between the community stakeholders, activists and professionals, and also between students and faculty from different cultural and professional backgrounds. The paper looks at how the studio was strategically handled to address the multiple conflicts and differences. Through participant observations and student course evaluations, it also examines the pedagogical and learning aspects of the studio. The paper argues that field design studio can play a unique role in local planning process by serving as an agent in negotiating conflicts and differences. By providing students with opportunities to learn from conflicts and differences and by serving as an agent in the local design and planning process, field design studio serves as a unique vehicle for service learning and community design. As field studio becomes a more common model for design education, this case study offers lessons and critical perspectives for other similar programs and further explorations.

Keywords: service learning, participation, differences, community design, case study

MARTIN LUTHER KING JR. ELEMENTARY SCHOOL GRAPE ARBOR: MELDING COMMUNITY DESIGN, SERVICE LEARNING, AND DESIGN/BUILD

Kyber, Ashley (Iowa State University) [Paper]

This fifth-year studio design project was a collaborative effort of The Des Moines Parks and Recreation *Urban Edibles Project*, Martin Luther King, Jr. Elementary School (MLK) (a science and technology magnet school), The Practical Farmers of Iowa (a non-profit organization) and Iowa State University's (ISU) De-

partment of Landscape Architecture. Ten senior students from three degree programs, (landscape architecture, architecture and interior design) participated in this service-learning community design/build as an outreach project. The goal of the Grape Arbor Project was to construct a venue for hands-on outdoor education for the students of MLK and to provide a "real-world" design/build experience for ISU students.

This presentation questions the outcomes of community design/build projects and their appropriateness as a venue for the learning experiments of the university classroom, especially in the typical one-semester time frame. Involving both community participation (input and feedback) and actual on-site construction, community design/build projects take an inordinate amount of both faculty and student time and commitment. Are the pay-offs of the experience worth the commitment of all parties? How can such projects be re-conceptualized, perhaps by "nesting" student learning objectives and faculty research, service, and extension responsibilities?

Keywords: participation, outdoor environments, qualitative research, landscape architecture, curriculum development

REGIONAL TRAIL PLANNING

Erickson, Susan (Institute for Design Research and Outreach, Iowa State University) [Paper]

This presentation will examine what benefits the resources of the University Cooperative Extension Service brought to a studio project, how interaction with students affected progress of the local planning committee, and the balance between student learning outcomes and project outcomes from the requesting community organization. This case study features a semester-long interdisciplinary effort of a Landscape Architecture studio class and a Community and Regional Planning studio class. The project for the two studio classes was a master plan of a trail system for a 7-county area in east-central Iowa. This paper examines post-studio results, and investigates the efficacy of the master plan

in guiding further regional development. The paper also examines learning outcomes for the course and evaluates the level of accomplishment of those learning outcomes. A central goal of the course was to investigate interaction with community – in terms of public participation methods and instruments; and input analysis and application to planning. Were these goals accomplished? A final component of the paper will examine the 3-way link between the studio course, the requesting community organization, and the Cooperative Extension Service, and what benefits accrued to each of the three parties in this endeavor.

Keywords: participation, outdoor environments, qualitative research, landscape architecture, curriculum development

SMALL TOWN PARKS

Butler, Peter (Iowa State University) [Paper]

This presentation will explore community members' reflection on the benefits and limitations of participation in extension design projects, the impacts of students' designs on park development, and the implementation of students' design proposals. In the springs of 2003 and 2004, two towns (Earlville, Iowa and New Virginia, Iowa) took part in a four-week community design project that is the final project of students' first semester of landscape architecture site design. The project utilizes skills learned in all previous projects, but integrating community concerns is a major "driver" for the project. This paper critiques these projects based on community expectations and the students' experience. Guiding questions for the research include: How well were student learning outcomes met, and how did the community involvement enhance the students' learning experience? Were the expectations of the community met, and how has the community proceeded with park development? How can the design process be manipulated to better match the needs of the community? And, what is the appropriate application of extension design projects within design studio? Discussion will include next steps for integrating a

more meaningful (from the instructor and student perspective) and relevant (from the community's perspective) design process in the second-year studio course.

Keywords: participation, outdoor environments, qualitative research, landscape architecture, curriculum development

STUDENT AND COMMUNITY OBJECTIVES IN DESIGN EXTENSION PROJECTS: COMMON GROUND OR GROUNDS FOR CONFLICT?

Organizers/Presenters: Butler, Peter; Erickson, Susan; Hohmann, Heidi; Kyber, Ashley; and Rogers, Carl (Iowa State University) [Symposium]

This symposium addresses issues in the use of outreach projects in landscape architecture design studios. Landscape architecture faculty members in the College of Design at Iowa State University (ISU) routinely engage students with extension "clients." These engagements may be formal, organized through an existing extension framework for studio extension projects, known as the Institute for Design Research and Outreach (IDRO); or informal, organized with community "clients" by faculty members working outside of the IDRO structure. Regardless of project type, extension projects raise numerous issues in the areas of pedagogy and participatory design. These include conflicts between community expectations and student learning outcomes; conflicts between ideal projects and economic realities of implementing these projects; and conflicts between the competitive nature of private practice and the goals of extension.

Extension projects are based on a principle of mutual benefit, in which communities receive assistance in solving a design problem and students gain "real world" experience. However, community expectations for design projects are often in direct conflict with both faculty expectations for student learning outcomes, and student expectations for a positive learning experience. Generally, communities identify a "clear cut" design problem for which they desire an econom-

ical solution. In contrast, instructors often seek design problems with higher levels of complexity, in order to address higher-level skills involving multiple aspects (behavioral, social, cultural, ecological) of design; and communities may be disheartened when “simple” problems are contextualized and revealed to be more complex. Similarly, instructors and students may seek to provide concept-driven work that generates extraordinary design solutions, while communities desire unpretentious design work that promotes the community’s status quo. This symposium examines the nature of the gaps that exist between classroom perceptions of exemplary design and the relevance of such design to community goals. Are extension projects that result in proposals that are perceived by community members as “overly sophisticated” of any real value, especially when designs that transcend the everyday solution are rarely implemented or implemented to community complaints? Should community conflicts be minimized, and if so, how, and at the expense of whose goals and expectations? Should extension design seek to educate communities as well as students? Or should communities simply get what they desire?

Design extension projects can also create conflicts between the academy and private practice. The line between professional work and student work is subjective and not always fully appreciated by communities. While the University world perceives design extension as altruistic, inclusive, and benefiting Iowa’s economic development, the professional design community often perceives such work as competitive and crossing into their territory. The case studies in this symposium examine this basic conflict in detail and propose various ways to minimize negative perceptions of design extension. Such techniques include using the IDRO administrative structure to provide a clear definition of “the scope of services” from the outset; educating communities about the nature of both design process and design education; by better defining appropriate uses for student work; and using extension projects to define a new part of a design process that functions as an incubator for professional practice.

Keywords: participation, outdoor environments, qualitative research, landscape architecture, curriculum development

SUCCESS STORIES OR NOT: SERVICE
LEARNING BEST PRACTICES

Miller, Nancy G. (University of Arkansas) [Poster]

A case study analysis evaluating three service-learning projects, Drake Field, K-mart, and Jefferson School – as they unfolded over a period of eighteen months in two different classes – produced recommendations for service learning in our university design program.

The faculty goals for the three projects were:

1. Find projects that would create greater degree of student investment and connection to studio projects;
2. Foster connections between students and professionals, enabling students to interact directly with client;
3. Provide an actual site and project to inspire students, and
4. Work with the community to further a sense of responsibility toward community by/for students.

Context

All three projects were similar in that they were adaptive re-use of existing buildings:

1. Jefferson School, an older elementary school no longer deemed usable by school board, but valued by the surrounding community;
2. K-Mart, an abandoned ‘big-box’ building envisioned by the Crossroads Coalition (a nine-county economic development group) as a regional Technology Center; and
3. Drake Field, an unutilized terminal building at a small aviation facility serving private and corporate aircraft.

Students involved in the projects were second- and third-year design students. Literature was reviewed and methodology applied in the classroom. Proposed outcomes for the projects were consistent with classroom and accreditation needs. All projects were SEED (Students Engaged in Economic Development, sponsored by the hosting university’s Economic Development Institute)

Observations

More successful projects had the following characteristics: a) clients sought faculty members to work with them; b) involving third year students; c) were outside of the community; d) client supportive at all level, but subsequently would not allow interaction with community; e) majority individual student work, some team work; f) client attended two desk crits, a concept presentation, and final presentation; g) client’s project progressed with regular updates; and h) client generated public interest and publicity about the project.

Less successful project were characterized by: a) faculty approaching the client; b) involving second year students; c) project clients were within the university community; d) support for the project came from client administration levels only; e) incorporated student design teams with little or no individual work; f) client attended only final presentations although invited to join at other points during the project presentations; g) client’s project continues but without student participation; and h) no publicity generated about project by client.

Discussion/Conclusion

The Technology Center has opened, incorporating many student ideas. Drake Field directed the architectural consultant to consider several student ideas and is actively using student work to attract investors. Jefferson school board expressed appreciated for student work but has not moved the project forward. However, the neighborhood is currently holding its own town meetings to determine end uses for the building.

These service-learning projects provided students experience working with a client and involvement in practical design experience. Students also began to see how they, as designers, can enrich the community through caring and helping a community realizes its goals. Faculty has developed a “best practices” policy.

Keywords: Participation, neighborhood, interdisciplinary, case study, service learning

POST-OCCUPANCY EVALUATION & PROGRAMMING

AMENDING DISCORD TO CREATE HARMONIOUS DESIGN: A CASE STUDY

Zimmerman, Donna (University of Wisconsin – Stevens Point) [Paper]

THEMATIC
ABSTRACTS

Post-Occupancy
Evaluation &
Programming

Post-occupancy evaluations (POE) are a process of assessment meant to assist in making more informed design decisions to improve an existing building or to provide direction for future facilities. POEs focus on building occupants and their needs, and thus provide insights into the consequences of past design decisions and the resulting building performance. Through this systematic process, those aspects of design that are effective or that create the greatest problems can be identified, assessed and finally amended to provide for better design solutions in the future. But is this assessment process limited to only buildings and can it be expanded to holistically evaluate the building within the context of a site?

This session will discuss a post-occupancy evaluation pilot study that was carried out at two interpretive centers; buildings that were built to reflect the dynamic stories of a particular site and communicate the connection between the building and the site to its visitors. Interpretive centers throughout the country play a vital role in connecting people and place and therefore have very specific and unique design requirements. They are public buildings that reflect a particular region, specific site or community (natural or cultural) and serve as a link to these places and their unique stories. They provide visitors with a sense of meaning for a place; therefore they are inherently linked to the site and the significance of the site. The post-occupancy evaluation process must then assess not only the building performance in terms of its design but also how the integration of building, site, context and story work together to provide significant learning experiences for visitors. For example, if one of the main goals of an interpretive building is to serve as an introduction to the site, how

does the design of the building accommodate for the integration of interior and exterior spaces and how does the building communicate this connection to the visitor? The results and methodology applied in this pilot study will demonstrate how the post-occupancy evaluation process can be revised to assess a building's performance in these terms. Several research methodologies were utilized in this study including case study analysis of similar facilities; site visits; photographing the building and visitor interactions; document evaluation (building plans); interviews that identified the goals and needs of facility users (employees) and how building performance met these needs; and survey of visitors to evaluate the effectiveness of the building and visitor interaction (how it communicated the stories of the site to visitors as well as accommodated the various activities that take place in the facility). This paper will discuss the results of the pilot study and demonstrate how the post-occupancy evaluation process is an important tool in assessing the success of building design as well as the building's relationship to the site and stories it was built to reflect.

Keywords: post-occupancy evaluation, case study, aesthetics/meaning/assessment, communication, interpretive center

BRIDGING THE GAP BETWEEN PROGRAMMING AND DESIGN: RECENT EXPERIENCES TEACHING HEALTH CARE STUDIOS IN ARCHITECTURE SCHOOLS

Organizers: Despres, Carole (Universite Laval, Quebec); Anthony, Kathryn (University of Illinois at Urbana-Champaign); Verderber, Stephen (Tulane University, LA) [Symposium]

This workshop session discusses recent experiences teaching programming and environment-behavior

research in architecture schools, with a specific emphasis on its application to design. Three case studies of healthcare studios are presented to generate active participation from the audience. First, Kathryn Anthony will present the Cannon Design Healthcare Studio at the School of Architecture, University of Illinois at Urbana-Champaign, as a prototype for exposing architecture students to complex issues in health care programming and design. The studio has been taught for three years and documented on the web; over 50 students and 10 architects have participated in it (see: http://www2.arch.uiuc.edu/kanthony/arch476_572SP05). Second, Stephen Verderber will report on the activities of the Rapid Response Design Studio he initiated in the School of Architecture at Tulane University in 2002. This studio has focused on transportable healthcare environments for rapid deployment globally in the aftermath of natural and man-made disasters. Last, Carole Després will discuss her four-year experience at teaching a Masters' Programming and Design studio on healthcare facilities at the Universite Laval in Quebec (Canada). The studio was initiated in collaboration with Quebec Ministry of Health and Social Services and aims at informing the undergoing revision of hospital architectural normative guidelines. The session reflects upon the comparisons between programming studios and design studios. Reasons why architectural students often perceive programming negatively will be analyzed, namely its reductive association with functional needs and room space requirements compared to the more exciting association of design with aesthetic and formal innovation. Avenues for making programming most needed training for responsible architects a more tantalizing topic in architectural schools will be suggested and are expected to arise from the audience discussion.

Keywords: architectural teaching, architectural programming, post-occupancy evaluation, architectural design, collaborative processes, health care

A CRITICAL REVIEW OF THE McNAMARA CENTER: A SIGNATURE FACILITY IN CONFLICT WITH BUILDING USERS

Corry, Shauna (University of Idaho) [Poster]

Signature buildings are considered to be the star facilities of many corporate, government, and university campuses. However, after the project has been completed the building owner and facilities team are left with solving a variety of problems. From inappropriate material selections and ineffective space plans, to health, safety, and welfare considerations, managing signature buildings has proven to be a challenge. This paper presents a critical review of a signature facility, the McNamara Alumni Center, designed by Antoine Predock. Critical review of signature facilities is necessary and needed in today's climate of corporate branding and the resulting meaning ascribed to the built environment. The messages premiere architects are communicating to building users are, at times, in conflict with the prevailing objectives of the discipline of design. Research methodology for this critical review included on-site observations, personal focused interviews with facility team members, and a photographic analysis of facility use. These qualitative methods provide a richly textured portrait of the designs' successes and failures. A content analysis was completed for both the facility photographs and the personal interviews/narratives and the data was analyzed and categorized according to the contextual framework outlined by Dickson and Carll White (1997). Emerging patterns suggest the following issues: 1) the relationship between the design program and the design solution's concept; 2) the users' perception and evaluation of and response to the design solution; 3) the facility's contribution to supporting the values of the users; and 4) the facility's contribution to promoting the quality of life of the users, are key in identifying design problems and the resulting conflicts users have with the building. Analysis of the findings suggest that although the center is an elegant design representing a beacon of knowledge, and serves

THEMATIC
ABSTRACTS

Post-Occupancy
Evaluation &
Programming

as a gathering space for alumni activities, it does not successfully function according to the needs of the client. It is apparent the design is concept driven and does not effectively address the goal of providing a safe, comfortable and supportive environment for foundation members and guests. From the first day of occupancy, several problems were apparent in terms of space adjacencies, wayfinding, and ineffective material selections. Although the facilities staff continually addresses these problems, the ineffective design highlights the need for increased client interaction in the formative stages of a project and the importance of adhering all phases of the design process, especially in reference to the research and data gathering phase.

Keywords: design review, academic, architecture, interior design, and qualitative research

ENVIRONMENTAL ANALYSIS OF
PATHOLOGY LABORATORY PATIENT
SERVICE CENTERS: A PATTERN
LANGUAGE APPROACH

Oliver, Joshua (University of Missouri – Columbia)
[Poster]

In today’s business world, many organizations find themselves expanding or changing services to meet the needs of diverse clients. Often, this leads to situations where the current facilities are no longer adequate to provide the most suitable environment for optimal productivity. For over 40 years environment and behavior research has been combining social science theory with design to provide an entirely new perspective of our everyday environments. From this discipline people have been able to identify and explain issues such as sick-building syndrome and the relationship between productivity and natural light.

This thesis employs the theories underlying environment and behavior research to address the needs of an expanding pathology laboratory organization. The main issues that are addressed are establishing a consistent image and basic space

requirements for new patient service centers (PSCs). The PSC is where patients have simple lab work performed for routine medical procedures. The purpose of the PSC is to provide easy and quick access for various local hospitals and medical offices. Because the organization seeks to service a variety of locations, it is inclined to lease space wherever possible to provide the best access to those who would use the space. Because each lab performs the same procedures, the space requirements are essentially the same. The only difference that exists is the actual space each lab occupies. The goal of this thesis is to establish minimum criteria for newly opened PSCs, to facilitate the expansion of the company. To achieve this goal, a series of visits was made to a selected group of PSCs to perform an environmental assessment, during which data were recorded relative to room measurements; physical conditions; and furniture, fixtures and equipment. Additionally, non-directed interviews were performed to acquire staff input as to the desirable and undesirable aspects of each PSC. The information was then compiled to determine common issues and preferences that affect the PSCs. These data were used to develop a criteria template that can be used to direct the future acquisition of space for new PSCs. In the social sciences aspect of environment and behavior research, this thesis takes into consideration the issues of personal space, crowding and territory. As a preliminary guide, Edward Hall’s (1959, 1966) four categories of personal space and Robert Altman’s (1975) definition of territory were used to assess the biases and preferences in information gained during staff interviews. The end result of this thesis produces a functional guide that permits the organization to assess any potential future locations of PSCs and select sites that will be the most beneficial to the organization. Existing building codes and regulations play a part in the minimum requirements that are established; however the criteria format is modeled after the Pattern Language developed by Christopher Alexander et al (1977).

Keywords: workplace/office; post-occupancy evaluation; design review; environmental assessment; pattern language

FUNCTIONAL PROGRAMMING AND
ORGANIZATIONAL DESIGN

Popov, Lubomir (Bowling Green University, OH)
[Paper]

Functional programming is a fundamental phase of programming projects. It deals with the user organization, activity systems, needs, preferences, and other traits. Functional programming delivers the social foundations for developing the space program. Using the appropriate methods at this phase predetermines the correct estimations and projections at the time of space programming. Functional programming methods provide the major distinction between, on the one hand, programming approaches utilizing environment and behavior studies and sophisticated research techniques, and, on the other hand, approaches based on building type studies and “hidden” prototypical programs. Spatial programming is conducted in a similar fashion across these two groups of approaches. Functional programming is particularly important in large projects and complex facilities, for example, in hospital planning and design. The intricacies of this building type have promulgated several different programming strategies, some of which are heavily based upon organizational redesign. Such practices are not new, but at the same time not common and mainstream. There isn’t much information about them. The programming community, programming courses, and textbooks rarely pay tribute to them. The purpose of this paper is to bring to the attention of the programming professionals the degree of organizational design intervention in programming projects. The objectives are to analyze critically the scope and depth of organizational design in the process of functional programming and the benefits of such practices, as well as issues of provider selection, logistics, and politics. The study utilizes case studies on hospital planning, metanalysis techniques, and document analysis. This paper discusses the types of programming projects that involve organizational design activities as a major part of functional programming. The adoption of

organizational design is due to factors that produce contextual pressure and challenges for businesses. The most important among these factors are increased competition, high production/service costs, shortage of qualified personnel, and low profit margins. In addition, the internal factors for adopting such an approach to programming include corporate goals and objectives for higher productivity, cost-effectiveness, quality of service, and increased profit margins. This paper delivers a programmatic perspective on organizational design and an analysis of this activity in the context of facility programming. In this regard, organizational design aims at optimizing organizational structures and processes, human resources, facilities, technologies, and financial resources. The benefits are tremendous – instead of fitting the building to the current organization that might already be obsolete; the programming process becomes an opportunity for organizational change and productivity increase. The presentation informs how organizational design is incorporated into facility planning projects and what decisions are made. Many of the typical facility development problems are resolved in completely new ways when the search for solutions is not only in the architectural domain, but in the intersection of organizational design and architecture. The paper contributes new information about facility programming practices and introduces critical analysis of functional programming procedures.

Keywords: facility programming, functional programming, organizational design, facility programming

A GUIDE FOR EVALUATING PLANS FOR
HIGH-RISE BUILDINGS

Churchman, Arza and Shinar, Ami (Technion Haifa, Israel) [Paper]

High-rise construction is occurring at an expanding rate in cities all over the world and is bringing about a dramatic change in the urban landscape. The Guide for Evaluating High-Rise Building Plans is the culmi-

nation of a multidisciplinary research work commissioned by the Israel Ministry of the Interior in 2000. This work responds to the need for a knowledge-based methodology related to the various unique aspects of high-rise building under Israeli conditions. The purpose of this Guide was to formulate tools for the evaluation and approval of plans that include high-rise building, both at the macro and micro scales, using a comprehensive, systematic, multidimensional and contextual approach.

The Guide is a compendium of criteria and tests that are designed to review the quality of a proposed plan that includes high-rise buildings. Such review is necessary, in light of the challenge entailed in the appearance of high-rise buildings in the urban context. The widespread appearance of high-rise buildings takes place in large cities as part of a process of increasing density, and almost certainly in close proximity to “conventional” and even historic buildings. In such conditions, the conflict between the new and the old, between the “low” and the “high” and between private developers trying to maximize profit from land resources and the need to preserve rapidly disappearing public space may be particularly strong. This Guide is designed to provide tools for understanding such problems in order to prevent or minimize them and to achieve the maximum benefit from high rise buildings.

The very definition of a high-rise building is relative, dependent on the context in which it is being planned and the difference between the proposed building and the scale of the buildings beside it or around it. We refer to buildings of 10 stories and higher as “tall buildings”, while for certain topics we relate to “very tall buildings”, higher than 20 stories. We make a distinction in some topics between tall buildings designed for residential use and those designed for offices, hotels.

The issues addressed in the Guide discuss (1) Spatial aspects and policies as to the location of high-rise buildings in a city or region. (2) Urban and architectural design aspects: (a) At the macro urban level, balancing considerations of location and accessibility, concentration or dispersion, the relationship between height, density and urban form. (b) At the micro (site) level, the manner in which the buildings blend in with the existing urban context, the relationship between

them and the bordering public space, and especially the street. (c) At the architectural design level of the building. (3) Social and psychological aspects: particularly with regard to residential buildings in light of our conclusions regarding the compatibility of very high residential buildings for only those of high socioeconomic status. (4) Transportation aspects. (5) Micro-climatic aspects.

Keywords: Urban development; Design review, City planning; Housing; Interdisciplinary

How Designers Use Programming Information

Organizers: Popov, Lubomir (Bowling Green University, OH) and Rosenheck, Thierry (Office of Foreign Buildings Operations, US State Department) [Pre-Conference Intensive]

Facility programming is about researching user needs and activities and translating them into design requirements and guidelines. In this process, programmers are directed by their assumptions of what information is necessary for design decision-making. Architects often indicate that there is a disjunction between the way they use information and the information they are given in the programs. Programmers should consider the information needs of program users – the designers. The type and format of the information presented to designers is important for successful information utilization and design decision-making. Programmers need to update periodically their perceptions and knowledge about information processing in design because designers’ skills and knowledge constantly evolve with the improvement of architectural education and continuing education resources. The goal of this intensive session will be to explore the information needs of architects, as well as how designers use facility programs. In this regard, several objectives are construed: (a) identifying the major problems that designers experience with programs developed by other providers; (b) discussing what information architects need in the process of their

decision-making; (c) discussing preferred information for different design phases; (d) determining the formats that are best for presenting design information; and (e) determining whether some information that is believed by programmers to be very important is not used by designers; and (f) deciding, if there is such a disjunction, what might be the reasons for it (e.g. inadequate information processing skills by architects or unrealistic expectation by programmers). The intensive session will involve expert presentations from the two sides of the programming-designing (supply-demand) continuum as well as group discussions. There will be three major activities: presentations by designers, a roundtable with program providers, and a capstone discussion involving all parties and participants present at this forum. This intensive session is intended for facility programmers, providers of post-occupancy evaluation services, environment and behavior researchers interested in serving better the design community, scholars of research utilization, as well as designers who would like to learn more about the state of the art and their status in the programming-design continuum. The workshop organizers anticipate 25 to 30 participants. This full-day session sponsored by the EDRA POE/Programming Network.

Project Types & Programming Methods

Popov, Lubomir (Bowling Green University, OH) [Poster]

There are a number of different approaches to facility programming. The most common approach is to use building type studies and design guidebooks or follow the “hidden” program of the prototype. This is the way that most of the architects do programming. There is a very strong school of participatory programming, where in addition to the usual building type studies, designers use sophisticated techniques of user participation to develop design requirements, unveil use preferences, and create design solutions. There are approaches that involve heavy engagements in orga-

nizational design. Additionally, there are approaches that are based on pre-established criteria, scales, and matching of demand and supply to develop a fit between users and their environments. The prototype/guidebook approaches rely extensively on previous design experience. Participatory models utilize creative methods for user engagement in decision-making. And there are approaches that rely extensively on academic methods for environmental and behavioral research. There are many methodological variations within each of these approaches, and, of course, there are cross-overs, which often utilize components of one approach within the other. We can hardly ever find an approach in its pure form. When we have such a diversity and wealth of methods, we can expect that the problem of choice will arise. Key questions include which approach will work best in a given project, which one should be selected, and which changes should be introduced to adjust the project better to the particular situation. These questions can constitute a difficult problem and even create a dilemma for programmers with experience and erudition. The problem can be challenging also for novices in the field who see many options and are uncertain which way to go and what choices to make. The purpose of this study is to present an answer to this problem. The objectives are to present a comparative analysis of project types and corresponding programming methodologies, and to develop a framework for matching project situations and methods, as well as for directing the process of creating crossover approaches compiled of several components. The author has developed a framework that consists of project situations, categorized according to several criteria, and programming methods, explained in terms of methods used, skills need, and their advantages and disadvantages. The project situations are described in terms of innovation and uniqueness of the building, project size, complexity of use, type of ownership, designers’ experience with that building type, and availability of building type studies, design guidebooks, and space standards. Programming approaches are analyzed in terms required building type expertise and available literature on the building type, as well as methodology, research skills, depth of description and/or intervention in client/user practices and patterns of behavior,

and interaction with user groups. The framework that is developed allows for exploring and analyzing project types and programming methodologies. As a result, a system of programming types emerges. The programming approaches are analyzed in accordance with the project type requirements, and recommendations are made for selecting appropriate methodologies or methodological components. The study will help programmers to understand better the applicability of different methodologies, including the determination of when to use a particular methodology while understanding their advantages and shortcomings.

Keywords: facility programming, programming methods

RETHINKING EVALUATION TOOLS FOR
EDUCATIONAL ENVIRONMENTS

Mann, Thorbjoern (Thorbjoern Mann Consulting,
Tallahassee, FL) [Poster]

Recurring crises in education as well as natural disasters forcing reconstruction of educational infrastructure of school systems for entire communities and regions both suggest rethinking of assumptions underlying societal policies for education in general, and specific tools for evaluating school plans and buildings. In particular, proposed sets of criteria for performance assessment of office buildings and schools (such as the tools developed by the Universal Design Evaluation or Building Performance Evaluation projects, or the facet theory-based framework used by R. Walden in her research on Schools of the Future) serve as the vehicle for this examination of these issues.

A first question is that of how such tools might be intended to be used, since each of various possibilities that come to mind – e.g. as design manuals for professionals involved in school planning, either as general guidelines or in deciding among proposed alternatives; criteria for use by authorities charged with permitting plans for new projects, guidelines for researchers comparing facilities and developing recommendations for future use (or needed change), suggestions for legisla-

tures to revise existing guidelines, etc. all would seem to have slightly different expectations. Review of examples of such assessment tools indicates that they are not well suited for most of these uses, for various reasons:

- Format, organization and detail of these tools seems the less accommodating of actual evaluation processes in practice, the more comprehensive, and detailed they strive to be;
 - Their conceptual organization at times suffers from insufficiently clear distinction between goals and objectives, proposed means to achieve them, and measures of performance indicating how well they have been met;
 - The basic conceptual framework loses clarity and usefulness, the more it tries to accommodate the different vocabulary of contributing disciplines ranging from architecture or behavioral sciences to pedagogical theories and environmental psychology (to name but a few). A needed simpler, commonly understood vocabulary to sustain the discourse has not yet been achieved.
 - Implied claims of scientific objectivity and ideological neutrality not only fail to accommodate various ‘ideological’ and political motivations influencing governmental and societal policies for education. It can even serve to precisely cloak such motivations
 - No matter how well-intentioned and well-founded in the minds of the researchers. The effect can be a non-neutral and often very temporary (fad- or fashion-like) emphasis to resulting recommendations on the one hand, and undermining the credibility of the entire effort of research on the other, if dissenting participants become convinced that the research is politically or ideologically partisan.
- In response to these observations, the paper proposes a) the adoption of a different conceptual framework (based on ‘place, occasion, and ‘image’), to demonstrate the effect of doing so on; b) a set of evaluation criteria based on this frame of reference and the concerns indicated above; and c) changes in the integrated research, design and planning process to counter the above shortcomings.
- Keywords:** school evaluation criteria, conceptual framework for design, integrated research, design and planning process

VIDEO DOCUMENTARY: THE LIVING
SALK INSTITUTE

Organizers/Presenters: Chapin, David and Zeynep,
Turan (City University of New York) [Symposium]

Only a few buildings of the 20th century have captured the imagination of architects and enthusiasts of the built environment. Louis I. Kahn’s Salk Institute is surely one of those. However, other than for its justifiably iconic image of a central courtyard framing a view of the Pacific Ocean in the distance, it is virtually unknown. This documentary takes a video field research approach, from both deeply within the place as well as from the narratives of many people who have had significant relationships with the building. A content analysis of this fieldwork has led to a constructed narrative of this instance of meaning-making. Both the people and the imagery of the building appear in moments of artful eloquence. Join us for a conversation with David Chapin, architect and chair of the Ph.D. Program in Environmental Psychology at the Graduate Center, City University of New York, and Zeynep Turan, doctoral candidate in the same program for a discussion around Living Salk Institute: How, in this place, do people make meaning?, a 54-minute DVD documentary of the Salk Institute for Biological Studies in La Jolla, California.

UNIVERSAL AND
ACCESSIBLE DESIGN

ASSESSING LEASED POSTAL FACILITIES
FOR COMPLIANCE WITH FEDERAL
ACCESSIBILITY STANDARDS

Christensen, David (United States Postal Service,
Arlington VA) [Paper]

An early accomplishment of the US Civil Rights Movement was the passage in 1968 of the Architectural Barriers Act (ABA) requiring that federal buildings be designed and constructed to be accessible to persons with physical disabilities. To comply with the law, the Postal Service and other federal agencies adopted a set of Uniform Federal Accessibility Standards (UFAS) that has guided the design and construction of federal facilities for the last twenty years. While the design community continues to debate the merits of such prescriptive standards vs. a more “Universal” approach, it may be argued that “good design” recognizes the diverse needs and abilities of user-occupants, and provides a synthetic solution to maximize their collective and individual satisfaction. For example, the Postal Service has adopted a comprehensive program of Building Design Standards for various types of new facilities and has integrated legally required accessibility guidelines into these documents. Since passage of the ABA, thousand of new federal facilities have been constructed, providing barrier free access to persons with disabilities. However, the inventory of older facilities, that predate modern accessibility standards, continues to be problematic. In particular, existing leased postal facilities have been the subject of legal conflict and controversy. As a result of litigation filed under the Architectural Barriers Act, the Postal Service was obliged in 1986 to adopt minimum accessibility standards for existing leased facilities. In 2004, the US Access Board issued new guidelines mandating that existing facilities leased by all federal

agencies must satisfy an extensive set of accessibility criteria before leases can be signed for continued occupancy. With an inventory of over 27,000 leased facilities, the Postal Service had an urgent need to develop an assessment tool for inspecting these facilities for compliance with the new minimum standards. This task was complicated by a grandfather provision in the new guidelines that permits certain non-conforming features, provided they comply with previous standards issued under the Architectural Barriers Act. This paper describes the content and development of an assessment tool for inspecting leased postal facilities. An Excel-based inspection checklist was developed initially to permit paper and pencil recording of compliance status. To improve the efficiency of the assessment process, software was developed to conduct inspections using a Personal Digital Assistant (PDA) application. The current assessment protocol includes options for recording recommendations for corrective action and cost estimates, and for uploading photographs and other electronic files to support itemized observations. Once field complete, the PDA assessment record is uploaded to a web-based database for further editing, quality control review and tracking through completion of the corrective action process. Training on the new assessment procedure was conducted in the Spring of 2005 and inspections started in June. Over 2,500 facility inspections were completed during the first four months of the program, and additional development and refinement of the application will continue through May 2006. Approximately 5,400 postal facilities per year are planned for assessment and corrective construction using this procedure.

Keywords: assessment, universal design, professional practice, computer applications, post-occupancy evaluation

***PLAYING OUTSIDE TOGETHER: THE
INCLUSION OF DISABLED CHILDREN
IN PLAY IN PRIMARY SCHOOL
PLAYGROUNDS IN ENGLAND***

Woolley, Helen (University of Sheffield, UK)
{Paper}

*‘Play is freely chosen, personally directed and
intrinsically motivated behaviour that actively
encourages the child’ (NPFA, 2000)*

Children’s right to play is laid out in the United Nations Convention on the Rights of the Child (1989) and is accompanied in modern western society by an increasing acknowledgement of the many benefits which play provides for children (Taylor, 1998; Cole Hamilton et al, 2002). Indeed such benefits are believed to be of significance not only for individuals but for families and society as a whole (NPFA, 2000). In the context of the primary school it has been shown that children learn more quickly and meaningfully when there is a playtime break, than when there is no such break (Pellirini and Blatchford, 1993; Coalter and Taylor, 2001). However it has been revealed that in England increasing numbers of schools are shortening their lunchtime and abolishing afternoon playtimes (Blatchford and Sumpner, 1998).

In a school setting it is important that disabled children have opportunities to play with non-disabled children, partly because in both mainstream and special schools there is a tendency for disabled children to spend most of their time in the company of school staff, rather than children (Watson et al, 2000).

The research reported here set out to develop an understanding of disabled and non-disabled children’s experiences in mainstream primary school playgrounds, to document the children’s knowledge, activities and use of play spaces and to compile perspectives on the dynamics of contemporary playground culture in the children’s own terms. Approximately sixty children in each of seven schools, in the north of England, were involved in the study, and a multi-method approach was undertaken

to elicit the children’s opinions and experiences while staff opinions were obtained through semi-structured interviews.

The things that children do in a playground can appear to be chaotic and haphazard to adults (Opie, 1993; Armitage, 2001; Delande, 2001). However such apparent chaos can be understood using a classification of: play with high verbal content; play with imaginative content; play with high physical content; and less structured play (Woolley, et al 2006). Although a series of barriers – organisational, social and physical – to inclusion in playground activities for the disabled children were identified (Woolley et al, 2006) there were many examples of where the disabled children, involved in the study, were included in all four types of play. The inclusion of the disabled children in play was facilitated by various methods: sometimes by the adaptation of play by non-disabled children, sometimes by the disabled child themselves or the use of their equipment, sometimes by the facilitation of a personal support assistant or lunch-time supervisor and sometimes by a disabled child creating their own play opportunities, either by themselves or with other children.

Keywords: play, primary school playground, disabled children, social inclusion

***POST-OCCUPANCY EVALUATIONS OF
SIX CHILDCARE FACILITIES IN DUBAI,
UNITED ARAB EMIRATES***

Nubani, Linda; Al Ajari, Abdelaziz; Amadani, Afsan; Azmi, Sherif; Balsini, Mona; Lari, Shirin; Bin-Ishaq, Najwa; Birjandian, Zahra; Bokharai, Delyar; Dantata, Nabila; Hamed, Rania; Menon, Revathi; Nahawi, Hiba; Ramehr, Shirin; Shaker, Samar; and Zarrinjooee, Dariush (American University in Dubai, UAE) [Paper]

Many architects and designers fail to acknowledge the contribution of the physical environment of childcare facilities to children’s social, cognitive and learning behavior. There is a growing body of research

that documents the effects of physical characteristic of the environment such as color, ceiling height, and circulation on child’s interactions with people and space. This research project was conducted by six teams of interior design students from American University in Dubai during the fall 2005 as part of a universal design course requirement. The goal of this project was to conduct a post-occupancy evaluations of six childcare facilities located in Dubai, United Arab Emirates. Each team interviewed the director and the teachers of the facility. Questionnaires were also submitted to parents who children attended the facility. Several site visits were made to each center to closely observe the children during the day. Photographs were also taken to document positive and negative design aspects of these case studies. Outcomes of this project are several: 1) a set of guidelines were prepared for designing nurturing and safe environments for children, particularly for childcare centers located in this region; 2) design solutions that improve the quality of childcare facilities were documented; and 3) observed design problems which contributed to child frustration and negative social behavior were explained and identified.

Keywords: children, post-occupancy evaluation, spatial behavior, case study, childcare centers

***RECREATIONAL SPACES FOR THE
VISUALLY HANDICAPPED: TAKING PART
IN A GUIDED BUS TOUR***

Kametani, Yoshihiro (Kansai University, Japan)
[Poster]

Many environments in Japan have been adjusted for the visually handicapped. However there are still many dangerous spaces they can not recognize. Often visually handicapped individuals have accidents or lose their way in Japan and typically very few of the visually handicapped go outside with the exception of what is required for minimum living activities. It is important that visually handicapped individuals be able to adapt to contemporary society, behave freely, and enjoy leisure as well as who are not visually

handicapped do. The ability to fully participation in outdoor activities offers a feeling of inclusion for those with visual handicaps allowing them to feel that they too are a contributing member of society. This case study focuses upon on enjoyable leisure or recreational spaces for the visually handicapped. Visually handicapped individuals took part on a guided bus tour in order for our case study to investigate whether visually handicapped individuals could fully enjoy the bus and easily visit interesting facilities around the city. The guided bus tour took a full day and was designed to visit five facilities; an aquarium, a baseball stadium, castle, an aqua tour bus and a sky observation deck. Participants in this research were composed of blind and/or visually handicapped persons and fully-sighted persons. This investigation focused upon use of the bus itself, bus movement and ease of visiting facilities through questionnaire and interview methods. This investigation also covered the facilities visited. The facilities themselves and gift shops within the facilities were critiqued by participants in regards to safety, comfort, amusement, and satisfaction. In addition to conducting statistical analyses between visually handicapped and non-visually handicapped participants. Observations regarding participants’ behaviors were record with video camera during bus tour, in an effort to clarify characteristics of spatial recognition. Our research demonstrated that during the bus tour, many of the visually handicapped had difficulty traveling between some facilities and the bus stop by themselves. Travel between tourist facilities and bus stops were challenging because there was not adequate equipment or cues for them to overcome the many barriers without assistance. In many facilities, the visually handicapped participants were able to tour the facility alone. Other locations were more challenging, for example the aquarium – there were many people in the aquarium, making it difficult for visually handicapped individuals to walk freely about on their own and clues for spatial recognition were difficult to locate therefore making it impossible to judge their position or direction. Our research concluded that when visually handicapped individuals were forced to be led by others that often they did not feel good and could not enjoy their visit to the

facilities. Some facilities did have voice guide systems but often our participants did not know how to use these systems and facility staff could not instruct our participants on how to use the systems. Visually handicapped participants enjoyed the visual explanations provided by bus guide and touring the facilities, and touching goods in shops.

Keywords: visually handicapped, recreational spaces, spatial recognition, bus tour

THE RESEARCH GROUP “A BARRIER-FREE LIFE”: UNIVERSAL DESIGN FOR THE BRAZILIAN HOUSES

Flemming, Liane; Chimenti, Beatriz; and Luz, Lourdes (Universidade Veiga de Almeida, Brazil) [Paper]

The project “A Barrierfree Life” began in 2004, as a research group of the University Veiga de Almeida – RJ, from the Seminary focused upon “daily accessibility”. Since then, this project has been gradually structuralizing. The project “A Barrierfree Life” intends to research universal design for houses, in an effort to create conditions which allow any person to totally use the environment. Here, any person means: aged, children, and carriers of deficiencies, patients, as well as those who do not possess any permanent physical difficulty, but may suffer from some type of temporary difficulty. The concept of universal design is still very new in Brazil, however in the US this concept has already been researched for a long time. This project uses the profile of the population of the aged; inasmuch as a public-target that is increasing in number and often possesses difficulties in using a common house due to accessibility needs. It is important to provide accessible design for this population in order to allow them to be independent and safe in their homes. This project investigates the quality of the internal environment: natural and artificial lighting, acoustics and colors which are important elements for the aged individuals to remain living their home for continued periods. Aged individuals have

expressed an intention to remain in their homes, but in order to do so diverse necessities must be adapted to guarantee the autonomy and independence of elders. Another important population which served as a focus of this research is the child. The role children have changed over time, but we totally do not adapt our house for their new and growing needs. We demand that children demonstrate certain attitudes and behaviors, but we do not offer them conditions, through furniture and finishes, to encourage them to behave the ways we expect (Inkeles, 1994). The results of this project were made available to the pupils at Universidade Veiga de Almeida. This is an interdisciplinary project involving architecture, landscape architecture and interior design. The first proposals and articles of “A Barrierfree Life” are available on an on-line blog, where beyond obtaining information on the subject, it is possible to interact with visiting researchers through posted commentaries and reports.

Keywords: human mobility, children, design for aging

INTERNATIONAL BUILDING PERFORMANCE EVALUATION SYMPOSIUM

Organizers: Mallory-Hill, Shauna and Vischer, Jacqueline C. (University of Manitoba, Canada) [Symposium]

The purpose of this symposium is to advance the International Building Performance Evaluation (IBPE) project and provide a forum for discussion about key issues in building design, performance and occupancy research and practice around the world. The IBPE was formed some eight years ago and is made up of researchers from countries all over the world involved in similar kinds of post-occupancy, user surveys and work environment research. Through paper presentations and an interactive panel discussion, we will

explore the impacts of using systematic feedback and application of knowledge gained through the Building Performance Evaluation process.

This year’s theme for the IBPE symposium is “Calculating Value: The costs and benefits of building performance evaluation”. Topics covered in this IBPE Symposium include, but are not limited to:

- *Return on investment* – what are the economic benefits of BPE?
- *Costs and benefits of feedback from users* – is BPE is a cost-effective approach to design and construction?
- *Defining quality* – is building quality more costly?
- *Cultural contexts* – are some building performance criteria culture-specific?
- *Knowledge-sharing* – how can we incorporate BPE into design education?
- *Design decision support* – how can BPE be used to aid decision-makers?
- *Design development and case-studies* – how has BPE been applied in practice for the design of new facilities?

Keywords: building performance evaluation, post-occupancy evaluation, programming, performance-based design, cross-cultural context, building economics

BUDGETING AND PRIORITIZING R&A PROJECTS

Szigeti, Françoise, and Davis, Gerald (International Center for Facilities, Canada) [Paper]

How to decide which facility projects to fund? This is an annual headache for decision-makers. Prioritization should be fact-based, objective, consistent, quick and transparent. Instead, it is usually difficult, time-consuming and expensive. Facility Managers and the occupants they support want the projects in their facility to be approved ahead of those for other facilities. Often, “the squeaky wheel gets the grease.” Until recently,

facility condition assessments (FCA) were the primary drivers for prioritizing R&A projects. This presentation will focus on how organizations with multiple locations can budget and prioritize projects using a multi-metric approach that is transparent, comprehensive and auditable, while being faster, easier and less costly than in the past. Building Performance Evaluation Metrics used in this case study include:

- Suitability: Gap Analysis of the Functionality and Serviceability of the facility.
- Condition: Assessed in relation to Life Cycle requirements levels of the organization
- Compliance: For sustainability, health and safety, and corporate policy
- Space allocation: Review of space needs and space used.
- Weighting: Relative Importance of the facility to support the work of the users.
- Other factors tailored to the situation.

Keywords: budget allocation; building performance evaluation; functionality; indicators of capability; serviceability; suitability; user requirements; repairs and alterations

DOES BUILDING EVALUATION PAY?

Preiser, Wolfgang (University of Cincinnati, OH) [Paper]

Over the past 35 years, post-occupancy evaluation/building performance evaluation (BPE) research and consulting efforts have raised the question of whether they are worth their cost. Two primary cost benefits of building performance evaluation can be identified:

- 1) Cost savings through BPE instigated interventions. While difficult to pinpoint in exact dollars and cents, such interventions have proven to be very beneficial to client organizations.
- 2) Cost savings through quantitative performance indicators. Outcomes of these evaluations have direct and measurable cost implications. Examples of such evaluations include: the Facilities Master Plan for

the Library of Cincinnati and Hamilton County. In these and other cases, productivity is defined through hard numbers, based on a weighted system of core indicators, which can include the traditional stakeholder feedback surveys, interviews, observations, and facility visits. They are augmented by building type-related indicators, such as the cost of operating and maintaining space; number and cost of staff; increases or decreases in the number of customers and utilization of specific services of the client.

The ultimate purpose of this research initiative is to collect, categorize, analyze and compare case studies from around the globe in which quantitative cost data can be clearly identified and documented. Cost benefits of BPE interventions, when generalized, should permit the creation of an algorithm for BPE.

Keywords: post-occupancy evaluation, building performance evaluation, cost-benefit analysis, library design

THE ECONOMICS OF BUILDING PERFORMANCE EVALUATION: BPE EXPERIENCES FROM AROUND THE WORLD

Moderator: Mallory-Hill, Shauna (University of Manitoba, Canada)

Panelists: Preiser, Wolfgang (University of Cincinnati, OH); Schramm, Ulrich (Fachhochschule Bielefeld, Germany); Kato, Aki (Toyohashi University of Technology, Japan); La Roux; Pieter (University of the Free State, South Africa)[Panel Discussion]

The purpose of this panel is to provide a forum for discussing key issues related to the costs and benefits of building performance evaluation (BPE) research and practice. According to de Voordt (2003), costs can be narrowly defined as financial costs, but also broadly defined as anything requiring sacrifices to implement, or resulting in a negative effect such as a loss of employee productivity. Benefits can be expressed narrowly and in the short term in monetary terms such as cost savings, or more broadly and over the long term as a positive effect such as increased

user satisfaction. Potential costs and benefits do not impact all building stakeholders equally. An organization may be interested in increasing net profit, an employee may be concerned with health and well-being, and a community in reducing environmental impacts. Typically in most parts of the world today, key building decisions are based on short-term and not always accurate cost estimates.

Audience members will be encouraged to participate as the panelists consider topics such as: What financial analyses could be used to encourage building clients to engage in BPE processes? How should the costs and benefits of building performance evaluation be measured over time? What factors influence building costs and benefits? What aspects of building performance have the greatest positive impacts in relation to their costs? How does BPE impact on design decision-making and result in cost savings?

Keywords: Building Performance Evaluation, cost benefit analysis, building design process and delivery, design decision-making support

EVALUATION MODELS & MAPLE/D: A META-METHOD TO SUPPORT ARCHITECTURAL PLANNING AND DESIGN OF COMPLEX BUILDINGS

Schill-Fendl, Monika (Federal Agency of Sera and Vaccines, Paul-Ehrlich-Institute, Germany) [Paper]

During a two-year international research project, the planning and design meta-method MAPLE/D was developed. The aim of this paper is to discuss its link to evaluation models such as BPE, POE, and UDE through three questions:

1. How can one find effective architectural solutions in an efficient way when planning and designing complex buildings?

To answer this question, the paper first identifies the core problems concerning planning and designing complex buildings, and then introduces the meta-method called “Method of Architectural

Planning and Design” (MAPLE/D) to resolve the core problems.

2. How can one control the efficiency of planning and designing by using MAPLE/D?

Typically, measuring efficiency must be carried out completely and objectively. In contrast to traditional ways of measuring efficiency, this paper proposes a new approach. Following Einstein’s statement “perception is reality” this new approach is based on a new definition of the concept of efficiency as the absolutely subjective perception of all people involved in the process of planning and designing. That means, MAPLE/D focuses on ‘satisfaction’ as the indicator of efficiency.

3. How can one link MAPLE/D with BPE, POE & UDE?

Finally the paper discusses whether there is a link between MAPLE/D and other existing building evaluation models. Can MAPLE/D give further impetus to these evaluation models and vice versa? One starting-point for this discussion could be the innovative interpretation of the term ‘efficiency’.

The presentation will be illustrated with built examples of public sector real estate and construction management in Germany.

Keywords: planning and design methods; meta-method MAPLE/D; efficiency; post-occupancy evaluation; building performance evaluation; universal design evaluation

HOW BUILDING PERFORMANCE EVALUATION FITS INTO THE GERMAN EDUCATIONAL PROGRAM

Schramm, Ulrich (Fachhochschule Bielefeld University of Applied Sciences, Germany) [Paper]

The Conceptual Framework for Building Performance Evaluation (BPE) is the basis for this paper. The BPE framework was developed as an approach that results in better design decisions, more involvement by users, buildings of better quality and more cost-effective management.

With its consideration of the entire building life cycle, BPE fits perfectly into the holistic view of Facility Management (FM), taught in the School of Architecture and Civil Engineering in a course on Construction project management. Both, FM and BPE constitute new fields not only within the school’s curriculum, but also within the changing world of the academy and the profession. Some of the challenges are:

- By 2006, Diploma courses at German universities have to be replaced by Bachelor and Master courses;
- The new courses have to have a clear, future-oriented profile in order to get approved by an accreditation agency;
- ‘Architecture’ has to reduce its student capacity by 15 % as unemployment and density are high (one architect per 650 inhabitants); and
- Training construction project managers and facility managers as new professions are becoming increasingly important on Germany’s building market in terms of time, costs, and quality.

The paper reports on these challenges. Benefits and problems will be discussed.

Keywords: building performance evaluation, building life cycle, architecture, facility management, education

REVITALIZATION OF A HISTORIC BUILDING THROUGH FUNCTIONAL REJUVENATION: A PERFORMANCE EVALUATIVE STUDY OF WORKPLACE ENVIRONMENTAL CONDITIONS

Le Roux, Pieter C. and Esterhuysen, Wilandi (University of the Free State, South Africa) [Paper]

The centennial celebrations of the University of the Free State in 2004 provided an opportunity to assess the image and future development of the university as a whole. Through an adaptive reuse program the historic Main Building was identified for revitalization into office space for the university’s executive management through a mix of both private and open plan workspace. Based on aspects pertaining to the

impact of workplace environmental conditions on users’ ability to concentrate and optimally perform and accomplish work-related tasks, this ongoing performance evaluative study aims to assess the specific facility’s functionality and serviceability levels on the basis of its support for diverse work styles and the user requirements associated with it.

The methodology according to which information is collected is similar to that presented in “Assessing Building Performance” (Preiser, W.F.E. & Vischer, J.C. 2004. Butterworth-Heinemann. Chapter 14) and consists of a survey of employees’ activities, activity duration, communication, and movement. Results of this study will serve (i) as feedback for the continued alignment of the university’s physical resources with the dynamic nature of university administration and (ii) to contribute to a database on work performance characteristics in the South African context.

Keywords: Revitalization, functional rejuvenation, workplace environmental conditions, performance evaluation

SCHOOLS FOR THE FUTURE – THE USERS PERSPECTIVE

Walden, Rotraut (University of Koblenz, Germany) [Paper]

The education of our children is a basis for human resources in an aging society. “Smart” building design allows for an education that can effectively prepare children for the growing demands of work (Gifford, 2001). This paper reports on the building performance evaluation of an innovative school design in Bruehl, Germany.

Using a facet approach (Borg, 1996), 163 aspects in 7 areas (façade, entrance hall, classroom, multi-functional rooms, sanitary facilities, staff room and gymnasium) were evaluated on their “present quality” and “future importance”. Individual aspects, as well as the total effect of the building, were evaluated on their performance, well-being, innovation and social co-operation. In the User Needs Analysis, 51 experts,

144 students and 31 teachers were questioned. Data analysis included factor and regression analyses.

User responses provided feedback concerning the innovative characteristics of the building. These innovations include: handicapped accessible design, seniors’ facilities, and ecological details such as skylights, a glass-roofed courtyard with Mediterranean plants, a heat recovery system, a rain collection system, and solar energy-fed spring. Participatory design processes involving students, teachers, an artist, and the architect helped to create a sense of belonging and ownership.

Keywords: innovative school design, future demands, performance, well-being, social behavior, facet approach, user needs analysis, building performance evaluation

UNIVERSAL DESIGN APPROACH FOR PLANNING, DESIGN AND MANAGEMENT OF TERMINAL BUILDING OF CHUBU INTERNATIONAL AIRPORT, JAPAN

Kato, Akikazu (Toyohashi University of Technology, Japan); Tsunekawa, Kazuhiko; and Taniguchi, Gen (Nagoya University, Japan) [Paper]

Chubu International Airport was developed in conjunction with expo 2005 held in Aichi, Japan. The planning and design for the airport terminal building started in 2000, and a Universal Design Research Committee was established early in the schematic design phase, and made suggestions in both the design development and construction phases. The committee was steered by AJU Wadachi Computer House, an organization to support mainly mobility-disabled people, and members from associations for people with other types of disabilities, like deafness and blindness, joined the process. After the airport opened, the team started an evaluation project for planning, design and managing the terminal building from a Universal Design perspective.

The presentation will mainly focus on the way-finding support features, such as the signage system. Extra signs were added and alterations were made

during the preparation stage for the grand opening and during daily operations thereafter. It was found that these additions and changes were not always completely in line with the UD guidelines. A database was made to view and check the details based on a broader evaluative perspective. Also, the survey included movement studies based on typical usage scenarios to evaluate the wayfinding support system as a whole.

Keywords: airport design, universal design, building performance evaluation, wayfinding

URBAN PLANNING

THE BELTLINE’S IMPACT ON ATLANTA’S HEALTH AND GLOBAL REACH

Ross, Catherine L. (Georgia Tech, GA); Hashas, Mine (Georgia Tech, GA); Leone de Nie, Karen (Georgia Tech, GA) [Pre-Conference Intensive]

THEMATIC
ABSTRACTS

Urban Planning

Georgia Tech’s Center for Quality Growth and Research Development (CQGRD) is pursuing two separate but related research initiatives regarding Atlanta and the BeltLine, a 22-mile loop of transit, parks, trails, and nodes of redevelopment surrounding the core of the city. The first explores how transportation and redevelopment projects like the Atlanta BeltLine help cities advance their international stature, while the second initiative examines health-related impacts of the BeltLine.

A growing body of literature on the evolution of cities in an increasingly global environment supports the idea that cities around the world must compete with each other on issues such as quality of life, transportation and logistics (making it easier for both people and goods to get to where they should, safely and with little disruption), cultural attractions, and economic development. To respond to this competitive environment, cities around the world are undertaking significant transportation and redevelopment projects to ensure long-term prosperity. The BeltLine is one example of how Atlanta is positioning itself as an international city, with the foresight and attention to quality of life and accessibility that implies. Across the ocean, in Madrid, a similar project is underway to reshape the M-20, a highway that rings the city, as a space for parks, new economic centers, and pedestrian walkways. CQGRD is comparing the changes taking place in these two emerging international cities.

The first research project reflects on how cities are competing not only for economic development, but also for the human capital. Therefore, cities have

to strive to provide a high-quality environment to attract and keep residents. A healthy environment – one that promotes “a state of complete physical, mental, and social well being” (World Health Organization) – is among the most important components of urban quality of life. This fact has led CQGRD, in conjunction with the Centers for Disease Control and Prevention, to conduct a Health Impact Assessment (HIA) of the BeltLine. Through the use of surveys, prior literature, and qualitative and quantitative research, the HIA measures both positive and negative health-related impacts on the people who live, work, and go to school in Atlanta. It addresses issues of physical activity, environmental contact, safety, social capital, and mobility and accessibility. The assessment, funded through a grant from the Robert Wood Johnson Foundation, is one of the first HIAs performed in the United States to evaluate a major transportation/land use project that has the potential for long-term, widespread redevelopment impact. The purpose of the HIA is to ensure that health concerns become part of the design and decision making process.

Keywords: city planning, urban redevelopment, urban design, sustainability, public health, globalization

CHANGING IDEALS IN LANDSCAPES: MAYBE SUBURBIA ISN’T SO ROTTEN AFTER ALL

Kirk, Nana (University of Illinois – Urbana-Champaign) [Paper]

The mass-produced post-World War II suburban residential landscape has been criticized by academics and satirized by the popular press. Ecologically conscious planners and educators

have decried its waste of precious resources and social scientists have declared that its cookie-cutter landscape produces conformist citizens. In the late 1970s, Clare Cooper Marcus wrote that her students, many of whom grew up in suburban landscapes, hated suburbia. However, at the edge of nearly every major American city, suburban residential development continues to be built and, even though it is designed in an even more standardized manner than ever, it continues to be profitable. There is only minor relief through innovative variations in planning such as neo-traditional planning and the redevelopment of urban areas. This paper reports on a study of 40 landscape architecture students at the University of Illinois in which they were asked to draw and describe their ideal neighborhoods. Unlike Cooper Marcus’s students in the 1970s, students overwhelmingly depicted suburb-like landscapes with single-family homes on large lots. Cul-de-sacs and loop road street patterns predominated. Fifteen percent (6) of the students also drew golf courses associated with their residential environments. Four students even depicted gated neighborhoods. While some expressed concerns about traffic and ecological sustainability, only one said he wanted to live in a completely automobile-free environment. A minority of students, predominantly those not born in the U.S., included attached housing or urban environments in their ideals. Despite the fact that with rising fuel costs, suburbia is now more than ever an unviable residential land pattern, it appears to be more accepted ideal. Several hypotheses might explain this overwhelming acceptance of and even desire for suburban landscapes. One is that the continuing process of suburbanization has largely indoctrinated students to suburban living; their responses may represent the saliency effect – the phenomenon that people make choices based upon what they know. It is also possible that geographic variation may explain the different results: the Midwestern students in this study may be more accepting of suburbia than West Coast students. Finally, it may be that Americans have realized that suburbia isn’t such a terrible place to live after all, and that aspects of its landscape satisfy basic human needs.

ENGAGING MULTIPLE STAKEHOLDERS WITH DIFFERENT GOALS AND VALUES TOWARD RESOLVING A FUTURE TRANSPORTATION PLAN

Putterman, Joel and Rader, Jeff (Jacobs Advance Planning Group, Atlanta, GA) [Paper]

The Clifton Corridor Transportation Study involved a three-phased process where substantial transportation challenges and potential solutions were identified though a technical, collaborative and interactive process. A diverse group of stakeholders was engaged to conceptualize innovative strategies to resolve the area’s transportation problems and elevate the level of area amenities and functionality. A primary goal was to build a consensus toward implementation of multiple transportation alternatives and preferred strategies. We will ultimately show how we engaged diverse stakeholders to better understand transportation challenges associated with rapid institutional growth in a mature residential district and in strategic planning to identify infrastructure, transportation management and land use strategies that, when implemented, would result in improved quality of life for all parties, balanced with the accommodation of future institutional growth and associated development.

Keywords: Professional practice, transportation, urban development

THEMATIC
ABSTRACTS

Urban Planning

MARTA: MUCH ADO REGARDING
TOPOGRAPHICAL ARRANGEMENTS

Konrad, Miriam (Sociology Department, Georgia
State University) [Paper]

The Metropolitan Atlanta Rapid Transit Authority (MARTA) was not an easy delivery. It was the off-spring of heavy contested and heated negotiations. Finally firmly established as the major bus carrier for the city of Atlanta in 1971, with rail service beginning in 1979, MARTA has remained a central site of conflict. It has ever been a scapegoat for white animosity towards poor blacks as well as a locale in which African-American resentment of white mobility privilege has been centered. Alternately framed as the city’s crowning glory and its embarrassing dirty secret, MARTA’s defining moments have been fraught with struggle and strife. How MARTA is funded determines whom it serves and vice-versa. County choices regarding paying into the system, based on perceptions of the benefits and burdens that MARTA was likely to afford, have fundamentally shaped those very advantages and impediments. Currently, financial hardship born of these perceptions and their consequences, coupled with deeply entrenched image problems resistant to face-lifts and other superficial measures, leave MARTA teetering on the brink of ruin. Race and regionalism are at the heart of both MARTA’s existence and its controversy. Four sets of actors with distinct agendas influenced MARTA’s inception and subsequent path: the downtown (overwhelmingly white) business elite, suburban whites, the black middle-class leadership community, and the poor and mostly black residents with the least access to mobility. For the business elite, the rail portion of MARTA was largely about image and an effort to reinvigorate the central business district. Suburban whites were skeptical regarding what a rail system would do for them, and feared that it would result in masses of poor African-Americans pouring into their neighborhoods. For African-American political leaders, it appeared to present the possibility of gains for middle-class blacks in terms of contracts and job opportunities and

the potential for greater mobility for impoverished African American citizens. Conversely, there was the well-founded fear that MARTA would result in business as usual, with more opportunities for white Atlantans and less for blacks. For those with least access, MARTA held out the promise of improving their lot, but also the threat of adding insult to injury by reducing bus service and replacing it with a mode and routes that favored anyone but them. In the early 1960s, when MARTA was in its nascent stages, it was Atlanta’s white business elite who proved most interested in its formation. Ironically, this is the very group that is currently most interested in its demise. This paper is an examination of how MARTA got to this point, and where it may go from here. Interviewing 20 transportation experts (including planners, authority board members and employees, activists, and lobbyists) and interrogating the available information base, I expose MARTA’s social role in the region. MARTA is both space and symbol, actor and acted upon, engine and caboose. Through an examination of its shaping and trajectory, I reveal how its physical existence both recreates and represent the city’s deep-seeded racial and spatial divides.

Keywords: mobility, urban development, social justice, sociology, qualitative research

NEW IDEAS ON OLD TRACKS: HOW THE
BELTLINE IS RESHAPING ATLANTA

Organizer: Gravel, Ryan (The Atlanta Beltline
Project) and Woolard, Cathy (The Atlanta Beltline
Project) [Pre-Conference Intensive]

The name “Belt Line” was coined for a loop of tracks that encircled Atlanta in its early days. After the Civil War, the loop was enlarged to expand local industry and commerce – and expand they did as the ambitious, entrepreneurial young city quickly grew. Eventually, commerce to, from and through Atlanta began to depend more on trucking and highways than on trains and railroads. As a result, some tracks – including many portions of the BeltLine – were abandoned and largely forgotten. Until now.

Today, Atlanta has a unique opportunity to build the future by cultivating the past. In 1999, Georgia Tech graduate student Ryan Gravel proposed linking multiple city neighborhoods with a new transit system along the BeltLine. He envisioned parks and trails, neighborhood preservation and revitalization, mixed-use development, affordable housing, cleaner air, and an improved tax base – all advancing economic development and quality of life. Among the first to recognize the BeltLine’s enormous potential was former City Council President Cathy Woolard. She would become its most ardent early champion.

This intensive takes a close look at the 22-mile transit greenway that reuses existing railroads as a wide linear park with streetcars, bicycle and pedestrian paths to connect over 40 diverse neighborhoods. It includes: 1) a presentation of related research, lessons and challenges, including a health assessment by Georgia Tech’s Center for Quality Growth; 2) a tour of key parts of the Beltline; 3) a charrette on effective greenspace design for the Beltline.

PLANNING, DEMOGRAPHIC CHANGE,
AND THE RACIALIZATION OF PLACE IN
COSTA MESA, CALIFORNIA

Day, Kristen (University of California Irvine, CA)
[Paper]

Like several other SU states, California is undergoing rapid demographic change, shifting from a predominantly Euro-American to a “majority minority” population. At the city scale, such demographic changes are often accompanied by tension, as diverse groups compete for resources and toggle to define the future of their communities. Urban planning and design frequently serve as the public arena in which such struggles are waged. These struggles have consequences for resource allocation and, eventually, for the form of built environments in these communities. This paper examines the construction and negotiation of racial and class identities throughout a multi-year “visioning process” in the Westside area of the city of Costa Mesa, California. The Westside is an older, mixed area that has undergone rapid demographic change, shifting from less than 18% Latino residents in 1980 to roughly 60% Latino residents today. Westside residents include middle class Euro-Americans (more often seniors and home owners) and a newer population of Latino parents and children (often lower income, immigrants and renters). Westside residents have faced on-going conflict as they struggle to define the area’s image, identity, and future aspirations. This study draws on findings from systematic observations of monthly visioning meetings and public hearings related to Westside redevelopment. Findings examine the ways in which the identities of diverse groups and places were constructed and negotiated throughout the visioning process, and the consequences of these constructions for future planning on the Westside. The case of the Westside can help to inform other cities that seek to successfully respond to demographic changes and to promote equity in urban planning and design.

Keywords: urban development, social issues/social justice, urban neighborhood/community planning

THEMATIC ABSTRACTS Urban Planning			THEMATIC ABSTRACTS Urban Planning
REGIONAL VERSUS LOCAL SPATIAL PLANNING IN SUPERREGIONS: THE CHALLENGES AND OPPORTUNITIES Organizers/Presenters: Ross, Catherine L. and Contant, Cheryl (Georgia Institute of Technology); Mumford, Karen (Emory University, Atlanta GA); Weyandt, Tom (Atlanta Regional Commission) [Workshop/Working Group] In the United States, local political entities make relatively independent decisions about future land use, infrastructure provision, economic development, and education. However, water resources, ecosystems, labor supplies, commodity flows, transportation and telecommunications infrastructure, federal funding, and social equity often transcend these boundaries. With the intensification of globalization, economic forces and technology are increasingly rendering these political boundaries less significant. This is most evident in the European Spatial Development Perspective (ESDP), a European Union policy statement adopted in 1999 that has brought nations together to improve economic competitiveness, protect the natural environmental, and promote social justice. The ESDP is a non-binding document that allows planning practices to vary in process and outcome. Its regional approach has enabled European planning to address problems that cross political boundaries. In this effort, European planners must overcome barriers between nations. They have done so, in some cases, with transnational vision statements for areas with economic and geographical ties (Nadin, 2002). In regard to formal land use planning, Andreas Faludi (2002) traces differences between the European and U.S. approach: “Unlike U.S. zoning ordinances that are controlled locally, European equivalents are subject to approval by state or regional authorities whose control is exercised reasonably and consistently by showing that local spatial plans fit into a broader pattern of planning. Also unlike the U.S., regional and sometimes national governments in Europe create spatial plans, setting out the broader framework into which local plans fit.” In the Southeastern United States (the states of North Carolina, South Carolina,	Tennessee, Georgia, Alabama, and Florida), the influence of globalization has been joined by substantial population growth. As of 2000, more than 46.5 million people lived in the Southeast; by 2050 that number is expected to nearly double, with a swath of population density creating a corridor from Raleigh, North Carolina, to Birmingham, Alabama. This growing Super-Region is already struggling with traffic congestion, disparities of opportunity, and environmental strain. Future population growth, while posing challenges, also creates opportunities for new and better solutions, especially from a spatial and regional perspective, as the European examples illustrate. This working group explores the conflict between local and regional planning in the Southeast, identifying challenges, opportunities, and the appropriate scale of efforts to overcome some of our most difficult issues – social equity, mobility and accessibility, natural resource consumption and degradation, and economic competitiveness. This research is the continuation of work that began in an international planning charrette, “Transforming Megalopolis,” that was held by the Georgia Institute of Technology, Lincoln Institute of Land Policy, University of Pennsylvania, the Regional Plan Association, and the Fundación Metrópoli in Madrid, Spain in March 2005. The charrette provided a first-hand European perspective on issues confronting the Southeast and has been instrumental in shaping future work. Keywords: regional planning, urban development, sustainability, social issues/social justice, ecosystem management USING GEOGRAPHIC INFORMATION SYSTEMS TO FOR OBJECTIVE ANALYSIS OF IRS POST-OF-DUTY LOCATIONS Ninassi, Carlo (Jacobs Advance Planning Group, Arlington, VA) [Paper] This case study highlights a geographical information system (GIS)-based management tool developed with the Internal Revenue Service (IRS). The Location Model – Post of Duty (POD) Guidelines System was	developed to improve the real estate portfolio and facility management decision making for the IRS’s nearly 800 buildings, totaling 31 million square feet. It provides a standardized and objective method to identify locations for POD’s with flexibility to adapt to changes in the IRS’s organizational structure. We will show how this tool is used by IRS facility managers to maximize facility resources and to continually align with customer service goals, addressing the conflict between consistency and adaptation to change. Keywords: Professional practice; workplace/office; GIS analysis; real estate; facility management SUSTAINABILITY/ LAND USE THE ANALYSIS OF ENVIRONMENTALLY SUSTAINABLE INTERIOR DESIGN PRACTICE Kang, Mihyun (Oklahoma State University) and Guerin, Denise (University of Minnesota) [Paper] The purpose of this study was to examine the state of environmentally sustainable interior design practice and to determine the characteristics of interior designers who apply environmentally sustainable interior design to their projects. Based on the impact of the built environment on people’s health and the health of the natural environment, interior designers are in the position to contribute to the creation of a world that embraces environmental, economic, and social sustainability. While some interior designers are using sustainable design criteria in their design, research that investigates how interior designers apply environmentally sustainable design as a component for current design problems has not been conducted. Knowing the state of environmentally sustainable interior design practice will provide a base to develop education strategies for sustainable interior design. A national,	Internet-based survey of interior design practitioners was conducted to collect data. The target population was interior design practitioners in U.S. and the accessible population was U.S. interior design practitioners in the American Society of Interior Designers (ASID). A random sample was drawn from ASID’s membership list. An email was sent to respondents, asking them to visit a specified Web site to complete the questionnaire. The independent variables are interior designers’ characteristics and the dependent variable is environmentally sustainable interior design practice. The interior designers’ characteristics were divided into personal characteristics about respondents and information about the respondents’ professional credentials based on the stages of the career cycle of interior design practitioners (Guerin & Martin, 2001). Environmentally sustainable interior design was defined by the three factors of global sustainable interior design, indoor environmental quality, and interior materials. Their frequency of application and importance in respondents’ interior design practice were then measured. Descriptive statistical analysis focused on the state of environmentally sustainable interior design practice. Inferential statistical analysis focused on the relationship between interior designers’ characteristics and environmentally sustainable interior design practice. Findings indicated that although interior designers acknowledge the importance of environmentally sustainable design practice, they have not frequently applied it to their projects. Use of sustainable interior materials was identified as a less frequently applied component of environmentally sustainable interior design. There was a significant relationship between interior designers’ characteristics and how often they apply environmentally sustainable interior design to projects and how important it is to interior designers. However, there was no significant relationship for how important environmentally sustainable interior design is to a designer’s firm. It was concluded that size of interior design project was a predictor for environmentally sustainable interior design practice for frequency of application, while design practice specialization was a predictor for importance to the designer. Keywords: sustainability, interior design practice, quantitative research

		BEYOND CONFLICT: THE ENVIRONMEN- TAL PRESERVATION AT WAKANOURA, JAPAN AN ATTEMPT TO REVITALIZE RESI- DENTIAL AREAS AND A SIGHTSEEING SPOT	
		<i>Tomotsune, Honda; Hirata, Takayuki; Kadonaga, Taku; Nakamura, Masayuki; Niiyama, Nao; and Okuno, Masanori (Wakayama University, Japan) [Poster]</i>	
THEMATIC ABSTRACTS	Urban Planning	Wakanoura seashore near the city of Wakayama, planted at the mouth of a Kinokawa river, attracts both tourists and residents. People love the beautiful view of the sea and gently rolling hills covered with tender greens, and the graceful scenery appears as the motifs of ancient Japanese poems called waka. Many hotels stand along the hilly seashore on the way to two fishing villages, but some of them are closing because of the recent decline of tourism. People living nearby have raised the competing needs of growth and preservation. Some of ruined hotels were recently demolished, and developers intend to construct housing developments. People are worrying about the destruc- tive impact to the nature and order of the natural land- scape. The need for an urban masterplan is the urgent issue now. Some civic groups are actively trying to sug- gest or appeal city schemes, and other civic movements are promoting voluntary preservation of historic and natural resources. But these attempts still need to be widely recognized and supported by citizens. The focus of the study is on finding new ways of harmonizing the residential area and sight-seeing spot. Revitalization will require integrating the contradic- tory needs of development and preservation, and can shape Wakanoura under the notion of sustainability for the natural and built environments. The analysis of the present landscape structure and workshops to create compatible conditions among residents, sight- seers and fishermen will find a new common ground in neighborhood aesthetics. The research of Saikazaki village, one of two villages in Wakanoura, focused on the transformation of living environment between 1971 and 1998, followed by further surveys in 2004 and 2005. The survey results showed that the basic spatial forma-	tions have remained unchanged, whereas the significant change of room arrangement brought about by renova- tion has been heavy. They show that intermediate small spaces covered with Tatami mats and wooden flooring in the middle of house plays an important roll as buffer zones if they are the hubs of dwelling spaces. Recently, the problem of aging societies in such villages is increasing, and houses built on the sloping settings add inconveniences attributed to level barriers. The present situations cause two major phenomena: either the elderly move out or families move to the area to support them. Due to such social trend, the local villagescape has transformed from the demolition of traditional homes and the construction of houses which outside of environmental context. The lack of reciprocal roles in an economy divided between fishing and tourism also emerged. The area’s basic environ- mental conditions are protected by regulations and bylaws as a part of national park and scenic zones. But the value the land owes to its environmental quality is not necessarily accepted. The masterplan is to re- spond to such social problems and develop a common ground of neighborhood aesthetics that are supported by individual memories or experiences of citizens. Keywords: transformation, landscape, environment, tourism, preservation
		THE BUILT ENVIRONMENT — AN ENERGY PERSPECTIVE	
		<i>Addison, Veronica (University of South Carolina) [Poster]</i>	
		Many built environments promote inactivity; often communities are designed for cars, and physical activity becomes an afterthought. This occurs in communities of all sizes, including college campuses. Automobile dependency has contributed to decreased air quality. Carbon monoxide is a component of motor vehicle exhaust, which contributes about 60 percent of all CO emissions nationwide. In cities, it is estimated that as much as 95 percent of all carbon monoxide emissions come from automobile exhaust. The issue of	
		the automobile-centered built environment threatens our health in more ways than one. In addition to affecting air quality, the lack of physical activity has also led to obesity. The incidence of overweight and obese people in the United States has reached epidemic proportions. As stated by Health and Human Ser- vices Secretary Tommy Thompson, “Overweight and obesity are among the most pressing new health chal- lenges we face today. Our modern environment has allowed these conditions to increase at alarming rates and become a growing health problem for our nation.” More than half of the U.S. population fails to meet the daily recommendation of 30 minutes of moderate physical activity. Physical inactivity is a major threat to health in the United States, but it is largely preventable. We have neglected the potential of the built environ- ment to provide opportunities for physical activity. By understanding the built environment and how humans interact with it, we can use it to alter human energy expenditure and decrease the consumption of energy external to the human metabolic system. This research will examine the built environment from the perspective of energy expenditure. For example, in a university setting, students with identical class schedules and living in the same residence hall can have a daily energy expenditure ranging from 127 kcal to 980 kcal depending on how they choose to navigate the campus: power-walking, automobiles, riding the bus, taking stairs or riding elevators, etc. This shows the potential contribution of the built environment on physical activity and energy expenditure. An average person cycling would have an emission factor of 0.0028 g CO/ g food, a typical automobile with a fuel economy of 25 mi/gal has an emission factor of 0.0312 g CO/ g fuel. For a five-mile trip, the person would emit 0.0034 grams of CO while the car would emit 104 grams of carbon monoxide. A person driving to the store and circling the parking lot searching for a parking space near the store entrance emits 10.5 grams of CO more than a person who parks at the first available space and walks to the store entrance. These scenarios, along with others to be presented in the full poster, allow for the quantifiable comparison of human energy expenditure versus other forms of transportation in the built environment.	
		Keywords: energy, human mobility, engineering, theory/conceptualization, sustainability	
		CHANGES IN THE STEWARDSHIP CONCEPT: LAND ETHICS, STRATEGIES, AND OUTCOMES	
		<i>Chanse, Victoria (University of California at Berke- ley) [Paper]</i>	
THEMATIC ABSTRACTS	Urban Planning	As areas in urbanized, forested, and rural areas con- tinue to shift away from traditional land management, communities of place and communities of interest began to develop new definitions of stewardship that in practice lead to alternative land management (Selman, 2004). Within the past 20 years, the planning and management approaches to watershed stewardship have dramatically changed with evolving skill levels of volunteers, increased funding for watershed restoration, increased attention on habitat restoration of riparian areas, and growing attention on the role of creeks in urban landscapes. This new practice of stewardship is a participatory form that is managed by institutions and creates new landscapes with habits of care and con- nection with the landscape. Historically, the practice of stewardship has changed from what was once a top- down, professionals-led approach to management ap- proaches of flooding and water quality to a movement that is local and participatory (Chanse and Yang, 2005). Although early participation was characterized by conservation efforts to fight stream channelization, the growing stewardship movement now is characterized by volunteers becoming long-term stewards skilled in monitoring water quality and creating habitat. Today more opportunities exist that promote a site-based form of stewardship as well, providing local oppor- tunities to involve residents that once only existed in areas outside of urban areas (Chanse and Yang, 2005). Using a qualitative case study approach, this research examines the changing stewardship practices by dif- ferent land managers such as the regional municipal utility district and park district to see how stewardship approaches have changed from the 1970s through the	THEMATIC ABSTRACTS Urban Planning Sustainability/ Land Use

present day. In urbanized areas, the practice of stewardship now is characterized by growing citizen involvement in a participatory model of stewardship promoted, organized and managed by institutions. This paper traces the emergence of participatory stewardship by examining the landscape architecture theories around ethics, strategies, and outcomes by tracing the history of stewardship approaches in landscape architecture and environmental planning with a particular emphasis on the emergence of participatory stewardship.

Keywords: participation, outdoor environment, case study, theory/conceptualization

DOES A CHILDHOOD IN NATURE MATTER?

*Raleigh, Mary-Jeanne (Antioch New England
Graduate School, Keene NH) [Poster]*

This poster session will discuss my dissertation research titled, "The Relationship Between Childhood Exposure to Routine Nature and the Use of Natural Restorative Environments as a Coping Strategy in Adulthood." College students are developmentally moving from childhood coping strategies toward adult coping, and existing strategies are tested within the new demands of college/adult issues. Many students use natural restorative spaces to deal with stress, others do not. The focus of this work is to explore the predisposing factors to natural restorative environment use. Exposure to routine nature throughout childhood may be a key factor in adult restorative space use. This research involved the collection of clinical assessment data on anxiety, coping strategy and nature exposure throughout the lifespan; complimented with interview data from a select number of the subjects. Data analysis reveals a positive correlation between amount of time in routine nature as a child and the use of restorative space to cope with stress as an adult. Data also indicates that individuals utilizing active coping strategies are more likely to use natural restorative space. The poster session will focus on the statistical analysis, research methods and resulting implications of this research.

Keywords: stress, behavior change, emotion, personal space, children

*ENVIRONMENTAL CONCERN:
ASSUMPTIONS ABOUT OTHER'S PEOPLE
BEHAVIORS AND ATTITUDES*

Sevillano, Veronica and Aragones, Ignacio J. (Complutense University of Madrid, Spain) [Paper]

Research has shown that we often overestimate the level of agreement of our own attitudes and behaviors with others. This tendency was called the False Consensus Effect (FCE; Ross, Green, and House, 1977). Within environmental psychology, this effect has been related to several environmental concerns, including the use of detergents and energy conservation (van der Plig, 1984) and water conservation (Monin and Norton, 2003). The most typical result in FCE research is that endorsers (people who hold a belief or an attitude) usually give higher estimates of people who will endorse that belief or attitude (estimated consensus) than non-endorsers (people who don't hold the belief or attitude). However, it was also found that some endorsers give lower estimates than non-endorsers and some non-endorsers give higher estimates than endorsers (Hoch, 1987). Thus, the full scope of the problem would lead to a conceptualization in three dimensions: the subject's own response, the subject's estimate of other people's responses, and multiple beliefs or attitudes (Dawes & Mulford, 1996). Specifically, the full specification of the problem would be: pro-environmental people (endorsers) who overestimate; non pro-environmental people (non-endorsers) who underestimate; pro-environmental people (endorsers) who underestimate and non pro-environmental people (non-endorsers) who overestimate among multiple behavioral and attitudinal statements. Such a full specification also entails having to account for the False Uniqueness Phenomenon (FUP), the perception that one's attributes are more unique than is the case (Suls & Wan, 1987, p.211). So, do we overestimate or underestimate the prevalence of our own attitudes/be-

haviors related to the environment? And what could the consequences be? We could find that specific beliefs about environmental behaviors/attitudes of others are a barrier to performing pro-environmental behaviors, if we perceive that others don't agree with us. One hundred and ninety-one college students filled in a questionnaire concerning pro-environmental (and non pro-environmental) behaviors and attitudes, the estimated percentage of people who hold attitudinal and behavioral items, an adjective check list for rating pro-environmental people (ngo members), and an adjective valence rating. Analysis of the FCE might show whether the mean consensus estimate provided by people who endorse an item is greater than the mean estimate provided by those who do not endorse the item (Krueger and Clement, 1994). The Truly False Consensus Effect (TFCE) analysis measures whether the correlation between the difference score, estimated minus actual consensus, and the rater's own endorsements are positive and whether these difference scores are negatively correlated with endorsements, thus showing a false uniqueness effect (Krueger & Clement, 1993). From standard analysis of the FCE, results suggest that for all items endorsers' consensus estimates of agreement were higher than non-endorsers' consensus estimates [p values among $p < .001$ to $p < .016$]. From TFCE analysis, the significant positive correlation between the difference scores and endorsements indicated the TFCE, mean all $r(\text{diff}, \text{end}) = .34$ ($p < .0001$). However $r(\text{diff}, \text{end})$'s were positive for 79% of the subjects. That is, 21% of the subjects showed FUP. Preliminary analyses for the full specification of the problem suggest that there are differences between groups described in such conceptualization in terms of prevalence of positive adjectives for environmental ngo members.

Keywords: environmental issues, psychology, academic research setting, and quantitative research

*ENVIRONMENTAL MANAGEMENT &
PSYCHOLOGY: PROMOTING SYNERGIES
THROUGH SUSTAINABLE DEVELOPMENT
IN ORGANIZATIONS – APPLICATIONS
TO BRAZIL*

Bolzan de Campos, Camila (University of Barcelona) [Paper]

It seems that environmental management and environmental psychology aren't as close as they should be. Even in scientific publications and in organizational practice, it is uncommon to find initiatives that promote this integration. Pol (2002) defines environmental intervention as any change in physical structures of a place that, directly or indirectly, causes an alteration in the ecosystem, the social structure, the social interaction of the population, or an environmental impact. Shared beliefs and values are the most important key to understanding and facilitating the management of change and conflicts (Garcia & Dolan, 2001). The environmental psychologist is an expert in analyzing the reality of the situation and proposing actions aimed at meeting the proposed objective. Environmental management systems (EMS) are promoting a change of values in organizations. This requires changes in its process, structures and human resources, while also attempting to adopt and identify sustainability values, explicit in the establishment of the environmental policy (Pol, 2002). This study is based on exploratory research done on Catalonia that aimed to show how companies dealt with the human factor in the change process through the EMS. It was done in collaboration with the Catalanian government and the research group led by Enric Pol. With the qualitative methodology, people at 20 companies that have been certified by some EMS or were in the process of acquisition were interviewed. Some of the findings of this study were that the human resources policies weren't integrated with the environmental and this was detrimental to managing change resistance. Also, it is notable that certification helps a company's exterior image and even improves the relationship between providers, clients and stakeholders. As a follow-up, I'm proposing to investigate how Bra-

zilian companies deal with the environmental changes. This would use the same model applied in Catalonia, be adapted to Brazilian cultural context, and identify opportunities to improve the process of environmental change with less conflicts and resistance, based on the environmental psychologist in the role as the expert that can manage with this challenge. It requires interdisciplinary work, where close areas can bring benefits of their fields through unified efforts.

Keywords: Environmental management, environmental psychology, change process

HUDSON RIVER PARK ZONE 4: A CASE STUDY OF CONTESTED SPACE

Adler, Jennifer (City University of New York)
{Paper}

The history of the Greenwich Village waterfront is rich and varied. It evolved with the development of Manhattan and, in recent years, transitioned from a vital center of the American maritime industry to a more public arena. No longer is it a bastion of outsider (marginalized) life (poor longshoremen and their families and, more recently, minority gay youth) but it is now part of a widespread public/private initiative to create public green space and luxury condominiums.

This research studies what is now often referred to as Zone 4 of Hudson River Park. It covers most of the western side of Manhattan from 14th Street to Canal and is located in Greenwich Village. It includes Christopher St. Pier, a location with a history of queer congregation and cruising behavior. In recent years, this area of the west side has been the site of large-scale luxury residential development and gentrification. When completed, the entire 550-acre Hudson River Park will be the largest green space development to be engineered since creation of Central Park in the 1870s, and the first public parkland developed on the waterfront in 75 years. It will stretch from the Battery in lower Manhattan to 59th Street, along the Hudson River. The project will include 13 public piers, a marine estuary and upland parks. This “emerald necklace” will

not be operated and maintained by the City of New York, but instead a public/private partnership known as the Hudson River Park Trust. The city promotes the park as a boon to quality of life on the westside of Manhattan. However, not all residents and waterway users agree. Community activists’ local citizens and environmentalists have dubbed the project alternately “Westway II” and “Son of Westway” after a failed attempt to develop a \$2 billion superhighway and landfill project proposed for the lower westside of Manhattan in the 1970s and 80s. Some see both projects as having the potential for similar community and environmental fallout. As many in the city mount campaigns to save their precious green space, Hudson River Park has proven to be one of the most polarizing public space proposals in recent years. Of particular interest to me is the continuing land-use battle between local residents and queer youth of color. Organizations such as FIERCE (Fabulous Independent Educated Radicals for Community Empowerment) that represent the youth population claim to have been unfairly targeted by quality-of-life initiatives that have attempted to displace them from the historically queer space. Recent protests and publicity (such as the teen produced documentary “Fenced Out”) have polarized the neighborhood and raised the important issue of for whom public space is designed and what types of behaviors are tolerated by law enforcement and the local community.

LEVELS OF RESPONSE IN THE CONCEPTUALIZATION OF THE ENVIRONMENTAL CONSTRUCT NEIGHBORHOOD

Williams, Cynthia and Amedeo, Douglas (University of Nebraska – Lincoln) [Paper]

It is clear from research that the place-concept neighborhood has been interpreted in multiple ways by individuals inhabiting them. But what accounts for differences in how this social-spatial enclave is construed? Are there mental prototypes of neighborhood common to particular groups in society? If so, how might they be distinguished from one another? If ways of con-

struing this concept involve assigning essential features to define its place category, which features are likely to be cognitively emphasized by which groups? Do neighborhood environmental prototypes imply much about ways in which individuals interact and live? These are the questions of interest in this presentation. Individuals are social beings and, as such, they transact and interact with others on a daily basis within everyday surroundings that have considerable social implications themselves (see Hillier and Hanson, 1984). Cognitive theorists suggest that social interactions and social contexts often shape the ways people comprehend and/or think about others, things and relationships. In that way, social relations and their norms exert their influences on experiences and behaviors (see Forgas, 1981: and Fiske & Taylor, 1991: and Howard & Hollander, 1997). The implication for this study is that people construe neighborhood in ways consistent with their social positions and contexts when engaged in cognitive processing about such places. This expectation will be the focus of this presentation. Reasoning in this way provides an opportunity for analyzing many different interpretations of the concept neighborhood. Since a notion of neighborhood is, in effect, a cognitive representation, resulting images among the individuals thinking about them should be systematically related to differences in the way they are conceptualized. These differences, in turn, should reflect influences by employing the idea of “level of response” when examining the cognitive processing involved in expressions of neighborhood. Theory associated with perceptual-cognitive processing suggests that there are five overlapping and interrelated levels to cognitive responses of surrounding events. These include affect, orientations, categorization, systematizations, and adaptation (see, for example, Ittelson, Proshansky, Rivlin, & Winkel, 1974; Ittelson, 1978; and Mandler, 1985). Their occurrence, preponderance, and positions in neighborhood notions should help to reveal, along with ancillary information, something about the individuals constituting these renditions and influences on them from their social living patterns. We elicit our subjects’ renditions of neighborhood and their responses to open-ended questions about this notion. Content analysis, coded by the dimensions describing levels of

response, is used to develop profiles reflecting neighborhood conceptualizations. These are compared with one another through multi-variant analyses (modes of factor analysis) to search for possible groupings among individuals, to identify the neighborhood-notion commonalties distinguishing groupings, and to describe social differences among the groups in terms of probable life-styles of the individuals constituting them.

Keywords: levels of response, neighborhood, and grouping

PERCEPTUAL IMPACTS OF THE ‘SEA CHANGE’ PHENOMENON ON AUSTRALIAN COASTAL TOWNS

Green, Ray (The University of Melbourne, Australia) [Paper]

The migration of city dwellers to small coastal towns, seeking a relaxed lifestyle in beautiful, natural settings in order to escape the pressures of city life, has been termed the “sea change” phenomenon. In addition to the demographic consequences associated with this phenomenon, increases in development and the introduction of new architectural forms unsympathetic to the distinctive character these towns have traditionally possessed are also changing the way these towns look. The result is the character of these places is being transformed into one of global uniformity. This study examined how people living in coastal towns located along Australia’s Great Ocean Road perceive changes in town character that have resulted primarily from the sea change phenomenon. Both long-term and more recent residents, including those who themselves are part of this sea change migration, were first surveyed using a mail questionnaire (N=1344), which was aimed at identifying features salient to perceptions of town character. Features most frequently identified, both those perceived as contributing to, and those seen as distracting from, local character, were then photographed and used as stimuli in photo rating workshops (N=221). Results of the photo-rating exercise were then presented to focus groups (N=34). They were asked to identify physical attributes associated

with those developments rated to be compatible with local character and, likewise, attributes associated with developments perceived to be out of character. Architectural attributes associated with developments rated as compatible with local character included their being screened by vegetation, painted in warm, earthy, muted and natural colors, having large setbacks, not having boundary fencing, being small in height and/or mass, appearing to fit into the landscape (e.g. lines and forms of the architecture reflect topographic forms), possessing well-articulated wall and façade treatments with a harmonious mix of architectural forms and a moderate degree of visual complexity. Attributes associated with developments perceived to incompatible with local character included bright and/or contrasting colors, large scale and/or a monolithic “boxy” appearance, lack of landscaping, possessing a disharmonious mix of colors, materials, roof types, window types, etc., and high density and site coverage.

Keywords: aesthetics, assessment, environmental change, place character, coastal Settlements

PLANNING FOR RAPID ENVIRONMENTAL AND DEVELOPMENTAL CHANGE IN A DEVELOPING CONTEXT: THE CASE OF THE OSA REGION OF COSTA RICA AND THE APPLICATION OF PARTICIPATORY PROCESSES

Vargas-Moreno, Juan Carlos (Harvard University)
[Paper]

This paper addresses the issues of the rapid regional transformations in developing counties, such as urban-rural change, interface definition and management, land use and natural resources use patterns and socio-demographic and spatially-explicit reallocations, and their subsequent demand to re-define planners, policy makers and development agents’ operational practices and development approaches. In particular, the paper constructs its argumentation based on a series of theoretical arguments drawn from the social science, anthropological and development literature but primarily on empirical demonstrations extracted from

my ongoing dissertation field work research in the Osa region of Costa Rica. I argue for a redefinition of planning and policy-making strategies based on a cross-disciplinary adaptive participatory process, focused on two premises. First, efforts should focus on the spatially explicit management of regional-change processes rather than in static outputs that lack the ability to adapt and transform as conditions change. Second, the notions of participatory science, technology employment and local knowledge should reposition as key aspects to address the issues of environmental sustainability, livelihoods and ongoing debates between conservation and development. The paper argues for an urgency to address these issues since currently the developing world is shifting paradigms from one of rural production to one of urban consumption, a phenomena that occurs at a time when world population is increasing at the fastest rate in history. I argue that the shifting of models of production/consumption and the challenges imposed by population growth have caused an immigration/migration process. Such process is characterized by a double journey: one from rural to urban centers made by those who abandon agriculture in search of urban opportunities; and one made from urban centers into the growing suburbia, made by those who want to escape crowded and unsafe urban environments. This complex flux of people and correspondent markets dynamics and particular demands inevitably creates unprecedented challenges in the frontiers of planning and policy. They also demand a crucial repositioning of the government’s role in developing processes. An inevitable spatial repercussion such as phenomena is an unprecedented rapid regional change dynamic, which imposes profound transformation of the land and resource-use patterns, consolidating a new culture of ambiguous and constant fluctuating edgeless regional territories configuring volatile cultural and economic scenarios. This paper is based on the ongoing dissertation field research conducted in the Osa region of Costa Rica and in experiences derived from other research experiences in Mexico (La Paz and Loreto regions, Baja California). Research methods supporting the partial findings include both participatory research frameworks and spatial-explicit planning and scientific methodologies such as GIS, remote sensing and comparative regional analysis. Key references (in

particular, authors such as Molano, Mbilinyi, Darce de Oliveira, Hall, Chambers and Adams among others) are drawn from the adaptation of anthropological, social science and development literature into the planning and policy analytical processes.

PROMOTING UNDERGRADUATES’ EMERGING IDEAS OF SUSTAINABILITY THROUGH JOURNALS AND DESIGN PROJECTS

Betrabet-Gulwadi, Gowri (University of Northern Iowa) [Poster]

This case study shares how interior design students’ reflections on sustainability and sustainable design principles are promoted via online postings and a reflective journal process. At the beginning of a semester-long design studio, senior interior design students reflected upon readings and discussions on sustainable thinking, sustainable actions and sustainable design. Reflection was encouraged throughout the semester to assist students in building a rationale for design decisions implemented in their projects later in the semester. The paper begins by discussing why sustainability is increasingly central to interior design curricula, why critical thinking must be fostered in students as they develop into their roles as future designers, how reflective journals enabled students to think critically about emerging ideas and sustainable principles, and concludes with instructor reflections on the process, its highlights and impending revisions.

RURAL URBANISM: A PLACEMAKING THEORY AT THE DEVELOPING URBAN EDGE

Tabb, Phillip (Texas A&M University) and Deviren, A. Senem (Eastern Mediterranean University, Turkey) [Paper]

With the advent of increased ways of communication and transportation worldwide, many are settling further and further away from urban concentrations to avoid the chaos and complexity of modernity. Growth is inevitable. But the problem is that the demand for rapid change and expansion is feeding the uncontrolled growth – the *sprawl* – particularly at the edge of valuable farmland and natural open space. The lack of organic relations between individual building types and circulation systems is creating the disordered and fragmented patchwork of suburban sprawl. The process is defining the contemporary context of *placelessness*, which is suffering from the consequences of dispersed discontent. Hence, sprawl is the proliferation of a short-term myopic pattern of development, which consumes precious land and the on-site resources that are central elements to our making of places. The contemporary discourse of alternative design and planning approaches against sprawl and placelessness is being dominated by checklist-based methods and formalist development model offerings. By overly determining, structuring and isolating the community life, they fall short both in using the opportunities offered by urban edges where human-nature interface is enhanced, to address real sustainable characteristics, and in making authentic places. Placemaking, through developing sustainable patterns, is a challenging agenda. It requires that architectural design and planning decisions be based on assumptions different from those of the reductionist, descriptive and formalist approaches. This study presents both an application and the theoretical framework expressed with a series of leading concepts. The placemaking theory is a planning and architectural strategy informing the design processes of physical contexts that ensures spatial necessities both for individual comfort and community relations. It supports the most efficient and effective use of local energy, natural and economic resources. The content of the theory is informed by 12 essential leading concepts, and the theory functions by utilization of its concepts through their application on site, within specific places. The application of the theory can be clearly seen in the planning and design work for the Serenbe Communities located outside of Atlanta, Georgia.

Most of the surrounding land encircling Atlanta has now been developed, except for a southwestern strip, which includes most of South Fulton County. The new *overlay district* will employ strategically variable forms of concentrations – estates, hamlets, and villages that anticipate urbanizing only 20 percent of the land. A unique planning concept was generated for each scale using a *middle-out* design process. The work produced a multi-settlement plan with three villages on the 40,000 acres (16,200 hectares), and a cluster of four omega-shaped hamlets within 1,000 acres (405 hectares). The result was a scaler-integrated set of interconnected settlements that expressed the leading concepts and complementary ideas appropriate to each of the planning scales considered. They are sensitive to the rolling and forested land and are site-fitted to engender a sense of place taking advantage of each micro-site. The consequence of the interactive correspondence between the experimental theory and practice can create a network architecture that embodies a potential for developing ecologically oriented and environmentally concerned settlements against the piecemeal and isolated suburban sprawl.

Keywords: rural urbanism, open planning, network architecture, constellating settlement design, placemaking

RECLAMATION AND THE CHANGING OF
A CULTURAL PERSPECTIVE

Cook, Brian (University of Colorado – Denver)
[Paper]

Reclamation, as an emerging type of landscape intervention, holds the possibility to not only transform our post-industrial environment, but also our cultural perspective. It offers new relationships between people and their surroundings, as humans begin to understand their role in the modification of a terrain. First, reclamation reveals a model for intervention as a way of operating. Second, because this revelation is found *in* the landscape, not of human formulation but instead brought about by succession results *in the land*,

it brings a new and respectful dialogue with our surroundings as we look to the landscape *itself* as a place of learning. As a physical embodiment of the abstract idea of hermeneutics, reclamation involves at first a questioning, then a marking with that understanding, and then a returning, to investigate the revelations that come after the withdrawal. Since the intervention invites the continual processes and interpretations of its functioning environment, the site for reclamation becomes a location for discovery, as these uncontrolled and unfolding characteristics are revealed and as new topographic situations invite invention and wonder.

Keywords: Culture, ecological issues, preservation/restoration, technology, landscape architecture

SOCIAL EQUITY AND SPATIAL
CONSIDERATIONS IN A PLANNED
MIXED-USE URBAN REDEVELOPMENT
COMMUNITY

Howard, Sandra L. and Juhasz, Joseph P. (University of Colorado) [Poster]

The intention of this study is to define the distinction between stated and unstated policy, and the physical results of stated and unstated policies. We are investigating the stated-policy intentions to be equitable, and the reality of those intentions as they are carried out. Further, we want to know what the reality might suggest for the future of equitable urban human spatial and social relations. We have selected the Stapleton redevelopment project in Denver, Colorado as a case study. Stapleton is a new urban design, residential and commercial mixed-use community development being constructed within the central-city boundaries, 15 minutes from downtown Denver. The location and scale of this development provide a unique opportunity to influence the social and economic future of Denver communities. Too often, social and economic outcomes created by inequitable spatial arrangements, and associated with institutionalized practices, legitimize discrimination and divide neighborhoods. These discriminatory spatial

arrangements and practices threaten the quality of life in urban areas for minority and working class groups (Castells, 2002). Although one aspect of urban social life may entail a personal choice to locate near people with similar interests, economic and political institutional practices often manipulate choice and create patterns of social exclusion (Dreier, P., Mollenkopf, L., & Swanstrom, T., 2001; Fainstein, S., 2001). Similarly, the relationships of institutionalized activity also produce influential interactions between designers and clients of the built environments (Friedman and Juhasz, 1974). The purpose of this study is to examine how institutional practices differ when public policy that incorporates ameliorative rhetoric is used to direct a contemporary urban redevelopment project, and what is the role of environmental design and planning for equitable spaces. The stated goal of the project under study is to use policy and physical form to create an environment that is equitable, meaning it will accommodate divers groups including race, age, ethnicity, gender, and income. Our conceptual definition of social equity is *the quality of conditions based on a fair distribution of space within a specific urban geographic area of redevelopment*. The operational definition of fair is the outcome of these spatial distributions with the geographic area studied. Preliminary findings using available data indicate private space is limited because affordable housing is concentrated in one area of the district studied. Public spaces show mixed results (e.g., participatory planning is conducted, open space is plentiful, and access is promoted); however, the presence and extent of diverse uses and users is presently unclear. These findings appear contrary to the redevelopment policy’s stated goal of diversity because private space is segregated, which may circumvent opportunities for diversity to occur within and across public space. The next stages of inquiry entail multiple methods of data collection (e.g., field research and face-to-face survey interviews with key informants).

Keywords: spatial behavior, social issues, community planning, urban design, and multiple methods

SUSTAINABILITY AS FRONTIER

Piergiorgio, Rossi (RomaTre University, Italy)
[Poster]

The present scenario of architectural technology is characterized by the diversification and hybridization of techniques and objectives. The energetic performances of buildings are even more controlled; lightness is a criterion that inspires the most qualified contemporary architecture; the environmental impact enters into the design process. Nevertheless, as in the first industrial age, the technological pattern exported by the rich North to the poor South is heavy, filled with pollutants and expensive. While in the most advanced countries the attention to safety, climate and resources is increasing, in the peripheral and poor areas, households try to produce an image of social status while paying steep environmental and social costs. A concrete structure needs sand, gravel and limestone (for the cement) extracted with serious injuries for the land. Imported technologies especially humble traditional craftsmanship based on manual dexterity.

The questions are: is it possible to improve the environmental quality without facing the poverty challenge and vice versa? How can technology help the people instead of following the business philosophy?

Some advanced architecture research and experiments are taking a different approach to construction. For instance, the geometries by Winestock or Nox permit building double curvature structures from cardboard without using hard industrial processes. The technological solution is in the information offered by the design and not in the tools required by the shape. To extend the research about the architecture for poverty, the Environmental Design course (Faculty of Architecture – Roma Tre University) analyzes and experiments with construction as design (or design as construction). The student has to see himself as the builder with his own abilities, tools, resources and opportunities. The materials that can be easily manipulated are found in daily life: food containers, cans, metal wire nets, paper, cardboard, rope and fabrics. The design appropriates the

whole building process, opening new perspectives for construction. The course has also involved working with two secondary schools. University students have helped secondary school students to develop two lightweight structures: a theater stage made from newspapers and a little market constructed from milk containers. To prepare the work for pupils, the design ideas derived from the cited courses have been developed into a sequence of single steps. The third stage of the course involves the proposal submitted to the European Commission answering to the call of Asia Pro Eco II Program. The proposal has been developed by a partnership among the universities of Jember, Innsbruck, Athens, Milan and Roma Tre to organize students groups in the areas affected by the tsunami. The intention is to build 120 houses, limiting unit costs to 900 for raw materials and 600 for supplies.

Keywords: adaptable, design, climate, construction sustainability, social issues

SUSTAINABILITY IN ANCIENT CHINESE:
A LIVING MODEL OF A TIME-SPACE
SYSTEM OF FENG-SHUI THEORY

Tai, An-chi (Virginia Technological Institute) [Paper]

To the ancient Chinese, sustainability was addressed not only in the context of present-day short-term environmental elements but also in long-term ever-changing phenomenon over time. Through the practice of a spatial system developed from *I-ching*, the ancient Chinese discovered cycles of environmental phenomenon and applied them in different scales, including urban planning, housing, and interior design, to ensure that human living patterns responded to nature rather than other way around.

The purpose of this paper is to explore the underlying sustainable environmental theory in the time dimension of feng-shui and re-define an open practical system for a decision-support framework. Through a review of literature and interviews with a number of feng-shui masters and scholars, this

research is able to identify several key connections between theoretical concepts and a practical time-space system of the feng-shui theory.

I-ching involves 64 pictures as part of symbolic logic to record natural phenomenon and the relationships between humans and nature. One of the applications of *I-ching* was in feng-shui, which was used to determine the rules of nature and establish principles for people to live and follow in the third and the fourth dimensions of space. This practical living pattern of time and space contains applicable options in three aspects.

First, the placement of a human settlement or a building should be observed over a history of long-term change and growth. For example, it is always undesirable to build on top of a hill because this location would be exposed to harsh rain and wind that, over time, would damage the building.

Second, the characteristics of a house change through time. In feng-shui theory, every building has assigned characteristics based on its physical factors and time of construction. In the very beginning of the process of building a house, the timing of finishing construction is important. Equally important is the consideration of who is going to live in the house and how the house is related to its urban surroundings.

Third, the way to use a space could be defined by different people at different times. The Chinese feng-shui theory defined a spatial system with a nine-square-grid plan and arranged peoples' relationships among the rooms of the plan (Tai, An-chi, 2006). This system also contained changeable options for residents to adapt their ways of using space, followed by time-changing principles. For example, the Wancheng diagram illustrates an ideal urban plan with nine gates for an emperor's city (800 B.C.), and each gate could be used in different ways according to different times, stratum, or purposes.

To avoid conflict between humans and nature, Chinese sustainability emphasized the importance of following the rules of nature. Understanding these rules and living with the changes over time is the way for Chinese to seek harmony while avoiding conflicts.

Keywords: Chinese architecture, feng-shui, sustainability, living pattern, time-space

SHAPING PLACES FOR PEOPLE: CONFLICT AND ENVIRONMENTAL QUALITY

Tokman, Leyla (Anadolu University, Eskisehir, Turkey) {Paper}

Architectural design studios are the places where dynamic and various activities are carried out such as making a critique of the design, forming architectural crits, reviews or juries, group and individual studies, reading/researching, counseling, thinking by modeling through the use of free-hand sketches, models and CAD programs and finally also some resting. These activities require creativity, concentration and motivation for learning goals. This paper is a research study based on the hypothesis that space organization, environmental data and the extent to whether there is an established relationship between the user and the design studio are crucial for presence of this high creativity, concentration and motivation. This hypothesis has been well supported through protocol analyses and surveys. The relationship between user's identity and the place, creative use of space, perception, cognition, dynamics of people-place relationships are analyzed in this study. The findings of this research expand upon important findings in the literature such as Manzo (2005)'s work about exploring multiple dimensions of place meaning. This paper presents an experimental study trying to explore the potentials to develop more sensitive studio spaces on the basis of the relationships between user/studio lecturer and student/behaviour and space and tool by taking today's youth and design education into consideration. What kind of relationships do design studios have with the use of space by the users, their social behaviors and learning? The various perspectives such as the relationships among perception, meaning, learning, inference, structure of information, logic as well as the relationship among space-meaning-identity-feeling and the analyses of these relationships reflected on physical space will be included in this paper. The findings and recommendations will also be given within the framework of this study. The findings of this research as a whole reveal important data

about the process of developing identity and meaning around architectural design studio. This study shows that environmental quality occurs more effectively on the relationship among workplace design, human behavior and learning process when accompanied with identity, experience, place meaning, making associations with the past and feeling of belonging.

Keywords: Identity, Participation, Built Environment, Conflict, Motivation, Creativity

TEACHING LAW STUDENTS ABOUT
SPRAWL AND THE LAW

Lewyn, Michael (George Washington University Law School, Washington, DC) [Paper]

In the fall of 2004, I taught a seminar on "The Law of Sprawl" at Southern Illinois University (SIU) School of Law. My essay seeks to guide would-be teachers of a course on sprawl (or of a segment on sprawl within broader courses such as property or land use), by showing how I taught the course and what I learned from the experience. Specifically, I seek to show:

- That my sprawl course fits comfortably into a law school curriculum, because it studies case law relating to land use regulation and education law, and because numerous other common courses relate law to social issues. For example, a majority of American law schools teach courses on "Race and the Law;" and
- How my own curriculum linked sprawl to legal issues. In particular, the course studied case law validating sprawl-creating land use regulation, and school desegregation case law that encouraged parents to prefer suburbs over cities.

The essay also discussed the tools I used to assess student competence, and studies possible changes I might make if I teach the course in the immediate future.

Keywords: law, social issues, community planning, urban design, curriculum development

WORKPLACE ENVIRONMENTS

ACCESSIBILITY OF SUPPORT SPACES IN OFFICE BUILDINGS

Hashas, Mine; Sanford, Jon; and Bafna, Sonit
(Georgia Institute of Technology) [Paper]

office building will also be conducted to map out and compare the connectivity and centrality of support areas for people with disabilities and for able bodies.

Keywords: workplace/office, spatial behavior, professional practice, case study, space syntax

BACKGROUND MUSIC, WORK & WELL-BEING

Leather, Phil; Santos, Angeli; and Zarola, Tony (Institute of Work, Health & Organizations, University of Nottingham, UK) [Paper]

Does the playing of music in the workplace improve employee well-being and, if so, how? These are the fundamental questions asked in this paper. Specifically, the paper reports the results of a comparative study evaluating the use of music in the sterile services work area of a large UK teaching hospital. Using a counterbalanced design, three musical conditions were used: classical, pop and a no-music control condition. The effects of music on a range of self-report and physiological outcome variables are examined, including: self-reported stress; self-reported arousal; blood pressure; pulse; social cohesion within the work group; liking for the work area as a physical environment; and perceived difficulty of the shift worked. The results show converging evidence for a beneficial use of music in the work area. Interestingly, pop music is found to have a beneficial impact on the work attitudes and self-reported well being, while classical music proves most advantageous in terms of the physiological indicators. The results are at least partly explained by means of reinforcement affect theory and classical conditioning mechanisms. The importance of the work context is emphasized and implications drawn for the generalized use of music in the workplace as a means of improving employee well being.

BALANCING BUSINESS GOALS WITH LOCAL NEEDS IN GLOBAL OFFICE SPACE STANDARDS

Keable, Ellen (Jacobs Advance Planning Group, Buffalo, NY) [Paper]

Conflict often generates the need for objective analysis, forming opportunities for design research. At Jacobs Advanced Planning, our practice is shaped by conflicts between business strategies and facilities plans, between community needs and infrastructure, and between stakeholders. We deliver value to our clients by defining these problems before solutions, with research at scales from furniture to community planning. One arena in which Jacobs uses research to define and address conflict, thereby bringing objectivity and rigor to pre-design and planning processes, is in workplace design.

Global office standards must balance business goals of cost reduction, efficiency, and consistency with functional needs, culture, and local control. Our client, Dow Chemical Corporation, uses Six Sigma methodology to define and measure quality throughout its operations. Building on its practice of prioritizing requirements by their impacts on business goals and the value placed on objective measurements, we integrated design research methods into the standards development process to address user requirements. The results shaped the form, content, and application of their global office standards to strengthen common, core values with flexibility for local needs and culture.

Keywords: workplace, design research

CONTAINER TRANSFORMATION: A MOBILE WORK PLACE

Sattar, Haroon (University of Arkansas) [Paper]

Technological advances challenge interior spaces and architecture, and add a mobile nature as well. This project attempts to explore the possibilities of a flexible, changeable, mobile environment, based on

a very successful mass transportation system – the highway network and container truck transportation system. Container Transformation is a self-contained, conceptual experimental sustainable mobile work-living place. Made out of recyclable truck containers, the self-contained mobile center can take technology to remote places and provide infrastructure for education. It can also exhibit and create awareness of important issues, including sustainable environments.

The self-contained units are equipped with necessary technology. Powered by solar energy, they include bathroom, food preparation and storage space. They may be able to provide essential infrastructure to support relief and rescue operations in any disaster area such as those hit by the recent Katrina and Rita hurricanes.

Standard truck containers provide the basic modular unit of this project. Four modular units are designed out of two standard container sizes. One 20-foot container unit is designed as a dwelling/living and work place. Another 20-foot unit is designed as an office/work unit, having a small private office work-station, built-in kitchenette and storage facilities. One 40-foot unit is designed as a work/office and dwelling unit. Another 40-foot unit is designed as an office-training center. Part of these container units expand, adding more floor area to make the units function efficiently and comfortably. The units are designed with built-in furniture that is both flexible and expandable. The units can be transported on trucks, train or even on ships. Modular units made out of recycled containers are an example of reuse of spaces.

The arrangement of modular units can be very responsive to any given site and environment. Units can be arranged in linear, parallel, square or cluster arrangement, creating possibilities for a wide range of set ups. The flexibility of space and function can be attained in each unit as well as in combinations of arrangements.

In summary, the design objectives of Container Transformation, a mobile transportable environment, are to develop an adaptable flexible structure that is responsive to its immediate and changing environment, has a low site impact during deployment, and little residual effect after demolition. The mobile unit provides infrastructure and event facilities for multi-

THEMATIC
ABSTRACTS

Workplace
Environments

In the United States, regulations mandate office building accessibility. In most office buildings, the accessibility requirements are achieved for work units of the individual with disability and for restrooms via wheelchair ramps, wide doors, accessible toilets, and adaptable work units. However accessibility of other parts of the office building, which may include the support areas such as fax and photocopy facilities, refresh spaces, locker rooms, and filing spaces, may be left out. Providing access only to work units is not adequate to allow people with disabilities to complete everyday work tasks. Even though a person with a disability is expected to fit into these environments, most of the time it may not be possible and can cause “work stress.” Support areas increase the likelihood of informal face-to-face contact between employees, considered important for information flow. Results of some studies suggested that provision of more support spaces can impact workplace effectiveness through the stimulation of cross-functional collaboration and a general sense of participation in organizational matters. In this context, access to these spaces by employees with disabilities is an important issue for work place satisfaction and effectiveness. Consequently, accessibility of support areas is a part of effective use of office space and relates to environmental control, which enhances group collaboration, communication, satisfaction, performance, and reduces psychological and physical stress. This pilot study will explore the effect of support space accessibility on social interaction and job satisfaction of people with disabilities in an office building in Atlanta. Data will be collected through structured interviews containing open-ended as well as scaled questions. Spatial analysis of the

THEMATIC
ABSTRACTS

Workplace
Environments

day indoor-outdoor events and meets the functional requirements of a wide range of users and target groups.

Keywords: Mobility, sustainability, transportation, workplace, interior design

CUMULATIVE RISK: A MODEL OF
DESIGN AND HEALTH IMPACTS

Bilotta, Elena (University of Rome, Italy) [Paper]
Additional Presenters: Evans, Gary W., Becker,
Franklin; and Keese, Alyssa (Cornell University)

Findings in the field of developmental psychology suggest that the action of risk factors is cumulative. This means that the combination of multiple risk factors is most often related to negative outcomes, not one specific risk factor. Moreover, a series of risks acting and interacting at the same time characterize many settings. Thus the analysis of multiple risk factors may also more adequately capture the ecology of risk often inherent in every-day environments. Traditional analytic approaches to model multiple-setting factors are limited by statistical power and human cognitive capabilities to comprehend only lower-order statistical interactions. Cumulative risk assessment provides an alternative analytic framework that is capable of capturing theoretically, meaningful environmental exposure in a manner that does not strain statistical and human capabilities. The aim of this paper is to describe the theory and methodology of cumulative risk assessment and apply it to perceptions and consequences of multiple risks in work settings. Numerous environmental psychology studies have demonstrated statistically significant but modest (at best) risks of exposure to aversive qualities of the physical environment (e.g., density, noise, insufficient privacy, poor indoor climate). However, the co-variation of multiple risk factors has received insufficient attention. This may mean that we have underestimated the possible consequences of suboptimal working environments on outcomes such as job satisfaction, productivity, stress, and health. Perhaps we have not collected data or

analyzed it properly as it corresponds to the individual worker’s actual experience of his or her work life. A multiple risk framework may help to ascertain some aspects of the interaction between worker and environment that have not been noticed using a traditional approach. Of course, it is not only physical risk factors that may co-occur. In fact, physical characteristics may be insufficient to represent the different kinds of risk present in a work environment. We also need to take into consideration psychosocial characteristics of work settings such as job demands, job control, job support, job discrimination, and role ambiguity. Temporal issues will also be considered in the model. The attention will focus particularly on the duration of exposure to the risks. Findings in environmental psychology demonstrate that longer exposure may have different, more negative impacts than shorter exposure. In spite of this, most researchers ignore exposure duration and restrict their analysis to short-term, acute responses that often yield weak significant results. There are studies suggesting that the chronicity of risk exposure (either physical or psychosocial) may be more critical than the risk’s intensity and the consequences of chronic risks even more negative. Moreover, the analysis of long-term risk exposure may help to better understand the ecology of risk in a work setting, since it reflects real workers’ experiences. Preliminary data from an ongoing study of a healthcare setting will be used to illustrate this approach, highlighting both its potential utility in the field of environment and behavior and noting some of its limitations.

Keywords: stress, health, workplaces, theory

DIFFERENCE IN SATISFACTION WITH
OFFICE ENVIRONMENT AMONG EM-
PLOYEES IN DIFFERENT OFFICE-TYPES

Danielsson, Christina (Royal Institute of Technol-
ogy, Stockholm, Sweden) [Paper]

Differences in the physical environments between offices may influence the employees’ satisfaction and psychological responses with respect to different aspects of the office environment. In a study based on 469 employees from the Stockholm area, employees rated their perception and satisfaction with the office environment in seven different office-types. The investigated office-types were classified as: cell-office, shared-room office, small open plan office, medium open plan office, large open plan office, flex-office and combo-office. Differences with regard to the following environmental factors were analyzed: 1) ambient factors, 2) noise and privacy, and 3) design-related factors. Multivariate logistic and Poisson regression were used to evaluate the responses. Adjustments for potential confounders as age, gender, job rank, market division and job satisfaction were done. Substantial differences between employees in different office-types were found. The analysis of frequencies in complaints within the three domains showed that noise and privacy is the domain that causes relatively most dissatisfaction among office employees. Cell-office employees are most satisfied with the physical environment overall, followed by those in flex-office. However, the results for cell-office are not uniformly best since they score low with regard to the social aspects of design-related factors and in particular on support of affinity. Most dissatisfaction is reported in medium and large open plan offices, where the results for dissatisfaction with noise and lack of privacy are especially negative. Architectural and functional features of the offices are discussed as the main exploratory factors for these results. **Keywords:** office employees, satisfaction, office-type, architectural features, functional features, ambient factors, workstation, office design, noise, privacy, design related factors

ENVIRONMENTAL CORRELATES
OF PHYSICAL ACTIVITY AT THE
WORKPLACE: FOUR CASE STUDIES IN
ATLANTA

Tsepas, Sharon (Georgia Institute of Technology)
[Paper]

Even though most Americans spend the vast majority of their time within buildings, most previous studies exploring the impact of the physical environment on activity have looked at the larger urban and neighborhood scale. This research focuses on the role of building design, site design and site selection in promoting moderate physical activity such as walking, biking and stair-climbing among office workers. Recently, multiple studies have focused on interventions at the building level, such as stair design and signage. In fact, Thom Mayne’s upcoming federal building in San Francisco incorporates skip-stop elevators to encourage physical activity and social interaction. Available literature suggests several environmental interventions that may have an impact at the building and site level. Additionally, research supports the concept of the workplace as a base for walking trips in urban settings. (Pushkarev and Zupan, 1975; Wegmann & Jang, 1998) In fact, studies of activity patterns suggest that the workplace is second to home as a base for activity trips (Wegmann & Jang,1998). Whereas large scale impacts in the private building industry are difficult due to a multitude of building owners and decentralized decision-making, the public-building industry provides an opportunity to impact a large number of employees with a relatively few number of building owners. Public agencies create and manage buildings for millions of Americans but have not yet included the support of activity among their development objectives. However, the nature of public agencies as well as interviews and surveys with public agency decision-makers suggests that they are open to considering support for everyday physical activity (Tsepas & Zimring, 2004). Given the national objective of promoting physical activity, attention to environmental interventions in these settings is particularly relevant.

The aim of this research is to:

- Gain a better understanding of how environmental variables impact physical activity among employees at the building and site level;
- Define and operationalize variables of the built environment as well as physical activity;
- Assess the relative impacts of environmental variables on physical activity; and
- Provide policy recommendations for physical activity friendly site and building design.

Case studies of four public buildings at the local, state, and federal level provide a basis for developing assessment tools and design guidelines for physical activity friendly environments in the future. At each site, the specific goals are:

- to understand the “activity goals” at each site;
- to identify the key elements of “activity friendly” sites;
- to gain an understanding of how each of these variables can be measured;
- to understand impacts of “activity friendly” design at each site on individual behavior; and
- to understand how these elements were incorporated into the design program and the impacts during the design and development process.

Four public buildings situated in an urban government “campus,” or center, in Atlanta are used in this study. This setting provides an opportunity to look at the range of issues dealing with site design and integration into the larger urban fabric. My goal is to increase the understanding of the relationship between the built environment and physical activity. Specifically, I will seek to explain the importance of specific design elements in promoting physical activity in office workers. The end products of this research will be:

- Preliminary model showing the association between environmental and physical activity variables and moderators at the site and building scale;
- Hypotheses for future research; and
- Preliminary policy recommendations for building owners (public agencies).

The methods used include on-site observations, travel surveys, review of architectural and policy documents, and interviews of key decision makers/stakeholders.

*FROM BLANK CANVAS TO
MASTERPIECE: CREATING INNOVATION
IN THE WORKPLACE*

Organizers: Gobes-Ryan, Shelia (Jacobs Advance Planning Group) and Augustin, Sally (PlaceCoach, Inc. Los Angeles, CA) [Pre-Conference Intensive]

Innovation is at the core of an organization’s ability to succeed and thrive in today’s business climate. This year’s intensive session will examine how organizations approach innovation, the role and value of space for organizational innovation, the processes and tools needed for effectively creating the space to enhance innovation, and how we can support organization’s ability to document and evaluate space as an investment in their ongoing processes of innovation. Finally, it will ask the question: does organizational space have a long-term and essential role in an organization’s ability to be innovative?

Keywords: workplace/office, architecture, interior design, psychology, interdisciplinary

*THE IMPORTANT ROLE OF ENCLOSURE IN
THE OPEN VERSUS CLOSED OFFICE DE-
BATE: A QUASI-EXPERIMENTAL CASE STUDY*

Brand, Jay (Haworth, Holland, MI) [Paper]

The issue of open versus closed offices has been around for at least three decades, but rarely has rigorous methodology been used in field studies to address the numerous relevant issues. One such issue involves the height of enclosure elements – usually referred to as “panel height” or “partition height.” A quasi-experimental design with a six-month follow-up was used in a global telecommunications corporate office to assess a change from seated height visual privacy (60”–64” enclosure) to no seated visual privacy (36”–42” enclosure). The results indicated that enclosure is an important part of the broader debate between open- and closed-office design.

Keywords: workplace/office, architecture, interior design, psychology

*AN INFORMATION TECHNOLOGY
EXPLOITABLE OFFICE LAYOUT DESIGN
PROCESS DEVELOPED WITH GTPPM
(GEORGIA TECH PROCESS TO
PRODUCT MODELING)*

Lee, Jin-kook; Eastman, Charles M.; Lee, Ghang (Georgia Institute of Technology) [Presentation]

This research describes the process model of office layout design and its installation. Similarly to the building design and construction industry, the office furniture industry and office layout design companies also have a lot of need to adopt and utilize the new information technologies. This research aims to represent the regulated design process model which goes on with product model and well-adapted information technology, and is represented with Georgia Tech Process to Product Modeling (GTPPM) application. It also explains some related technologies based on the traditional business process model and proposes extensions for the information technologies, which are positively exploitable for office layout design.

In the aspect of whole building life cycle, the office layout design and installation industry takes charge of the final process of the construction stage and some parts of the operation stage in maintenance (Eastman, 1999). After this stage, the building could be in the stage of as built. The scope of the process modeling in this research is office layout design stage. When the office building and its floor plans were designed, office layout design could be initialized. The characteristics of this industry are easily differentiated with architectural design industry by their initial information s quality and quantity. In the aspect of information, office layout design can be started with a lot of pre-defined graphical information and non-graphical information. This research concerns information flows that were well-adapted to the information technologies based on the conventional design process.

There are four domains of workers who have a relationship within this design process. They are interior architects, office building architects, furniture design and manufacturing companies, and facility managers. In order that their collaboration should be settled to meet the case, process management system have to be considered adequate allotment in transaction. Most of them have tended to do work out of their boundary because it was difficult to make exact boundaries between their jobs. For this reason, it is important that process modeling and the management system should support the appropriate information flow between them.

Keywords: workplace/office, technology

*LINKING MARKETPLACE INNOVATION
AND ORGANIZATIONAL INTENT TO
WORKPLACE STRATEGY*

Barnes, Janice (Perkins+Will) [Paper]

Using a case-study format, this session presents marketplace demand for innovation in biotechnology as a catalyst for developing organizational intent and accompanying workplace strategy. The business context of the biotechnology arena is introduced as a marker for understanding organizational behavior and the co-development of cross-functional and functional teaming structures. These structures are discussed as key foundations for innovative practices that support market leadership. This context is then presented as a challenge to developing workplace strategy in support of innovation. Case-specific success metrics are identified and assessed as a series of organizational and physical-design implications that directly support innovation.

Keywords: workplace/office

MODULAR VERSUS LANDSCAPED OFFICE: A COMPARISON OF SPACE, BEHAVIOR AND ENVIRONMENTAL PERCEPTION

Rashid, Mahbub (University of Kansas); Zimring, Craig (Georgia Institute of Technology); and Wineman, Jean (University of Michigan) [Paper]

This prospective research study was conducted at a federal office that moved from a modular and somewhat private work environment to a landscaped non-private work environment. The study at the old modular office was conducted almost one year before the move, and the study at the new landscaped office was conducted more than one year after the move. The purpose of this study was threefold: (1) to measure and evaluate changes in patterns of accessibility and visibility due to changes in office layout; (2) to understand the effects of layout changes on observed behaviors; and (3) to determine the effects of layout changes on environmental perception. The study included the analysis of visibility and accessibility of each layout using space syntax techniques, field observations of behaviors, and questionnaire survey of employees’ environmental perception. During field observations, we observed movement, visible co-presence (i.e., the number of people visible from a space) and face-to-face interaction along a predefined route in each office. Thirty-five people responded to our questionnaire survey at the old office. Out of 35, only 29 were available for survey at the new office.

Based on our questionnaire survey data, we constructed three multifaceted scales to measure perceived privacy, job satisfaction and commitment to organization. Results indicate better visibility and accessibility, increased face-to-face interactions, and improved perceived privacy at the new landscaped office. Results also show consistent effects of space on movement, and significant positive correlation between perceived privacy, job satisfaction and commitment to organization at these locations despite significant design changes. Implications of the research results and limitations of the research design are discussed.

Keywords: landscaped office, space syntax, movement, privacy, workplace/office

OFFICE DESIGN AND PRODUCTIVITY

Wheeler, Gary (Gensler) and Clements-Croome, Derek (University of Reading, UK) [Paper]

Is workplace the forgotten multiplier for productivity? A recent study by international architects Gensler assessed the impact of office design in relation to productivity, staff attraction, and retention and creativity. With senior managers saying that better offices would make them up to 19% more productive, the results show that inefficient offices are costing the British economy up to £135 billion every year. Is it possible that in an effort to drive out costs, businesses may be missing the point? Using field data and research evidence, this paper discusses how working environments can be improved to enhance performance and fit business strategies.

Keywords: workplace/office, behavior change

THE PHYSICAL ENVIRONMENT OF THE WORKPLACE AS A STRESS BUFFERING MECHANISM

Leather, Phil; Zarola, Tony; and Santos, Angeli (Institute of Work, Health & Organisations, University of Nottingham, UK) [Paper]

In this integrative paper, evidence is presented to demonstrate that the physical environment of the workplace has both direct and indirect impacts upon human well being. One important category of indirect effects focuses upon the ability of physical design elements in the workplace to help or hinder in coping with psychosocial stress at work, i.e. stress due to the content or social context of the job. The provision of window access to nearby nature, for example, can provide a temporary means of escape

and recuperation from mental fatigue. Conversely, even low intensity sound can be detrimental to well being when one is engaged in a complex and demanding task. In short, it is the combination of, and interaction between, design features and task characteristics that is crucial (although individual difference factors will also play their part). Using this “direct and indirect effects framework,” data will be presented from studies of both office noise and windows in the workplace to show that the physical environment of the workplace has a real and measurable impact upon well-being (construed as both self-reported health indices and work attitudes, e.g., job satisfaction, affective organisational commitment, and intention to quit the organisation). The implications of these data for both post-occupancy evaluations and for practical workplace design strategies will be discussed.

Keywords: workplace/office, psychology, stress

PRACTICE RESEARCH DISCUSSION: THE US GENERAL SERVICES ADMINISTRATION WORKPLACE 20/20 DEEP DIVE PROCESS AND DEVELOPING EFFECTIVE PRACTICE RESEARCH APPROACHES

*Organizers: Gobes-Ryan, Shelia (Jacobs Advance Planning Group, CA) and Augustin, Sally (Place-Coach, Inc. Los Angeles, CA)
Presenters: Powell, Kevin (US General Services Administration, Washington DC); Budd, Christopher (STUDIOS Architecture, Washington DC); and Marsh, Melissa (DEGW, Santa Fe, NM)*

Finding a way to effectively do research to develop better design solutions is an ongoing challenge as budgets shrink and schedules shorten. Yet with increasing expectations for investments in Real Estate to support organizational success, it is also becoming more important. This session will start with an examination of an applied research program, iDeep Divei, developed by the United States General Services Administration and their Workplace 20/20 team to

address these challenges, and provide high-quality input for design projects. Kevin Powell from the GSA will discuss the objectives and structure of the deep dive process. Team members Christopher Budd, and Melissa Marsh will discuss their experiences in working with Workplace 20/20 projects. Time will be provided for presenter and participant discussions of practice research.

Sponsor: EDRA Workplace Environments Network

A STUDY OF THE “TRANSPARENCY” OF OFFICE BUILDING LOBBIES

Lee, Hyochang and Ha, Mikiyoung (Yonsei University, Seoul, Korea) [Poster]

The lobby is the space that contributes the most to conveying the first impression of an enterprise or company occupying a building, and it enhances the quality of the urban or business environment around an office building. Transparency is one of the biggest changes in architecture since the modern age began, and it is the most important element of lobby design. It can cause an enterprise’s image to be embraced by users, and the image may impact on an enterprise’s profit. This study was an attempt to understand the expression of transparency as applied in the lobby space of office buildings. Document review and field study were conducted to collect data. In the examination of the theoretical background of transparency to make a specific study purpose, and based on an on-the-spot probe document, an attempt was made to grasp the expression method of Visual Transparency and Phenomenal Transparency. The data were subject to descriptive statistics such as frequency, percent and correlation coefficient. A summary of the findings of this study is as follows:

1) Transparent materials are not applied on the floor. It is nearly impossible to use transparent materials on the floor because of equipment or structure problems the building itself. When Phenomenal Transparency is discovered on the floor, there is usually a “Superimposed Space.” The reason is because the lobby and the

superimposed intermediate space are overlapping a specific section of the lobby space;

2) During the survey it was discovered that Phenomenal Transparency was often used on the wall of investigated building. The reason is that exteriors have a curtain wall structure and the interior of the lobbies had partially adopted permeable and semi-permeable materials. Phenomenal Transparency is found less on walls than on the floor of lobbies. “Superimposed Spaces” with specific space discharges were rarely seen in the situation of “Superimposed Space” on walls.;

3) The expression methods that appeared the most on ceilings among the Visual Transparent expression methods by on-the-spot probe sequences were “Transparent Materials” and “Open Sight.” The reason is that they were attempting to introduce more day lighting into the lobby of buildings by using glass or other transparent materials. In the case of Phenomenal Transparency, the high occupancy on percentage on proportion is found on ceilings. The reason is that there are usually offices above the lobby that would cause a large amount of Superimposed Space; and

4) The result of the analysis of the correlation coefficient of Visual Transparency and Phenomenal Transparency revealed that there is more than one expression method of transparency. Open Sight and Surface Material methods were introduced in case of the introduction of Transparent Material among Visual Transparency in office building lobby space planning. If the Superimposed Space method is introduced, then the “Ambiguous Border” and “Dual Sight” methods are introduced.

Keywords: Transparency, visual transparency, phenomenal transparency, cognition, lobby

WINDOWS & OFFICE WORKER
SATISFACTION: POSITIVES & NEGATIVES

Newsham, Guy; Aries, Myriam; Veitch, Jennifer; and Charles, Kate (National Research Council, Canada) [Paper]

As part of NRC’s Cost-effective Open-Plan Environments (COPE) project, we conducted a large field study involving measurements in nine office buildings. Physical data were collected in 779 individual workstations, and simultaneously the occupants of those workstations answered a questionnaire about their satisfaction with various aspects of environmental satisfaction. Among the significant results were a set related to window proximity. Occupants seated closer to windows were more satisfied with lighting, but less satisfied with ventilation, acoustics and privacy. In the North American context, people seated further from a window may not have a view of a window at their seated position. Analysis of similar data from the Netherlands, where everyone had a view of a window from their seated position, provides some subtlety to the issue of satisfaction with lighting. In this case (data from 333 people in 10 buildings), occupants closer to a window were less satisfied with lighting for computer work, which we attribute to glare problems; those further from the windows still had a view, but with reduced risk of glare.

Keywords: workplace/office, lighting, privacy

WORKPLACE CASE STUDIES

Organizers: Gobes-Ryan, Shelia (Jacobs Advanced Planning) and Augustin, Sally (PlaceCoach, Inc. Los Angeles, CA) [Symposium]

This session will examine what practitioners define as their most challenging workplace issues and hear from them how they approach these issues to develop valuable workplaces.

Current questions include:

- What are we measuring, how and why?
- How do we effectively translate client under standing into valuable environments?
- How do we make space more valuable to our clients?

Keywords: workplace/office, architecture, interior design, interdisciplinary

THE WORKPLACE IS A STRATEGIC TOOL
IN TODAY’S FACILITIES MANAGER’S
TOOLBOX

Green, Brian (Herman Miller) [Paper]

In 2002, James Rice of Building Operating Management wrote,

“After years of focusing on cutting the cost of space and making it as efficient as possible, there is not much left to squeeze. However, savvy facility executives are learning that a high-performing workplace can make a significant contribution to boosting productivity, improving profitability and creating a competitive edge. To achieve this exceptional performance, facility executives are finding they must shift their focus from the space their people occupy to the nature of the work their people do and how they can support it most effectively.”

This presentation will address two pertinent ques-tions in this regard:

1) Why should an organization shift its thinking from furniture as an environment cost to furniture as an organizational effectiveness tool?

a) Workplace design is a central ingredient in worker/organizational effectiveness.

b) The effectiveness and satisfaction of knowledge workers will be improved through workplace design.

c) Organizations that want to recruit and retain top talent need to consider the benefits of furniture and workplace design.

2) How can workplace design support the physi-ological, psychological, and sociological needs of the individual?

a) Knowledge workers need concentration. However, disruption is a workplace reality.

b) Privacy enables concentration. Control is an attribute of privacy. Control for concentration is about privacy.

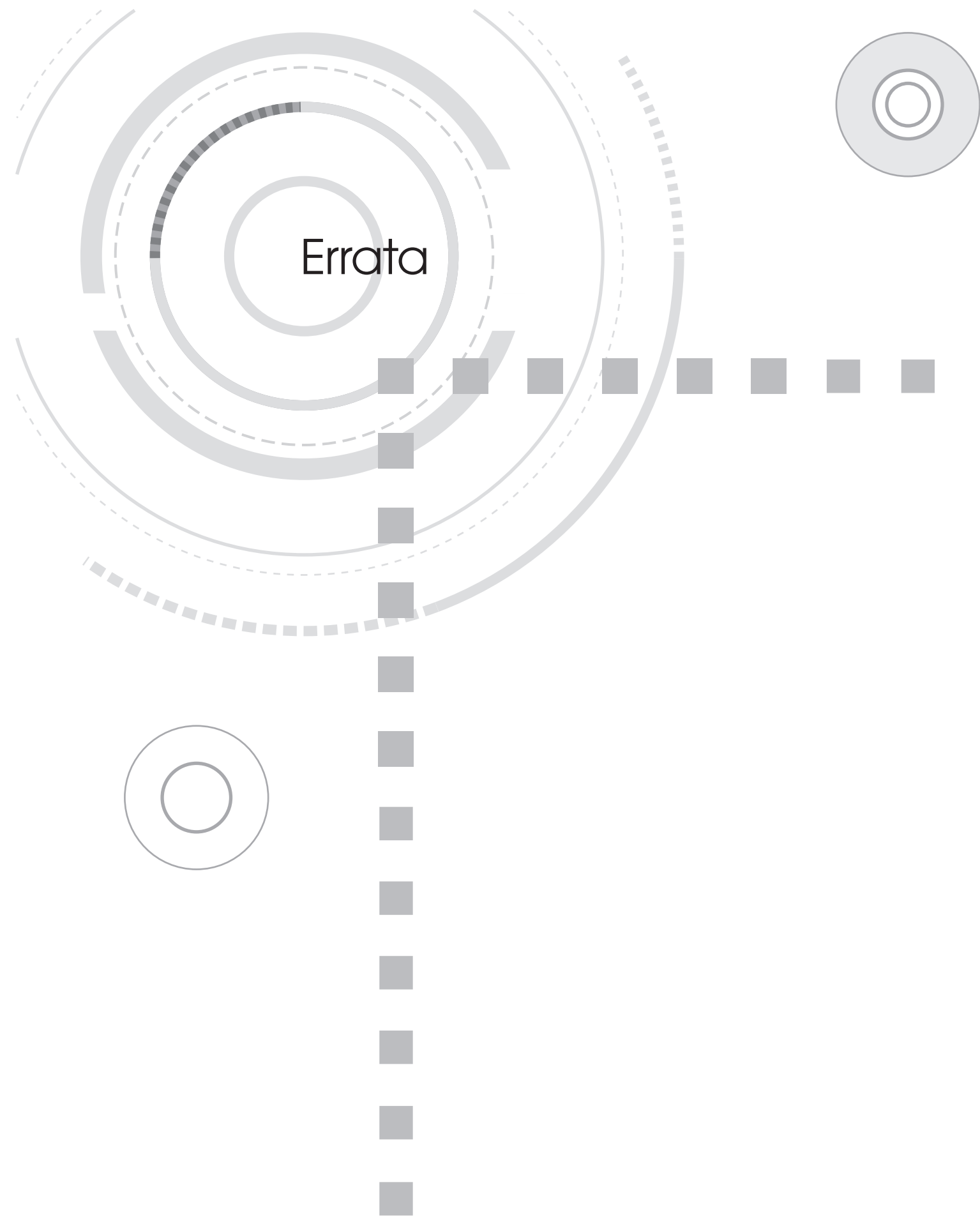
c) Engagement is an enabler of concentration.

d) Control and stress have a relationship. Increased stress can be the result of an inability to control privacy.

e) Connection moves work along efficiently. Con-nection is not collaboration.

f) Knowledge Workers say comfort is the most important attribute of their ideal office space. Feeling good and working well go hand in hand

Keywords: workplace/office, interior design, psy-chology, privacy, stress



EDRA extends our apologies to the following presenters who were accidentally omitted from the EDRA36: Design for Diversity Proceedings.

COMPUTER GAME PLAYING AND SPATIAL KNOWLEDGE

Cubukcu, Ebru (Dokuz Eylul University, Izmir, Turkey) and Nasar, Jack L. (Ohio State University, OH) [Paper, EDRA36 2005]

Widespread use of computer-games makes it worth evaluating the effects on spatial knowledge. Computer game playing has been shown to alter a range of visual skills. We tested frequent computer-game players (FPs) against less frequent players (LPs) in relation to their development of spatial knowledge. Participants first explored one of eighteen virtual environments that varied in the resources required to develop accurate spatial knowledge of the environment. Then, they completed three tests of spatial knowledge: 1) navigating to a destination, 2) estimating the direction to the destination and 3) drawing a sketch map of their route to the destination. Although the FPs and LPs did not differ in their direction estimation scores, the FPs scored better than LPs on tests of navigation and sketch map. Future research might examine whether training on video computer games improves performance on spatial knowledge tests.

Keywords: cognition, spatial behavior, city planning outdoor environments, virtual environments, spatial knowledge

DIVERSITY OF SETTLEMENT IN A SETTLEMENT: A WAY FORWARD IN CITIES OF THE DEVELOPING WORLD – CASE OF NAIROBI

Ochieng, Crispino (Jomo Kenyatta University of Agriculture and Technology, Kenya) [Paper, EDRA36 2005]

Like the majority of cities in the developing world, Nairobi have landscape of settlements where a planned one would have a counterpart that is unplanned. This later type of settlement would be located within a location in the planned one or next to the perimeter of this.

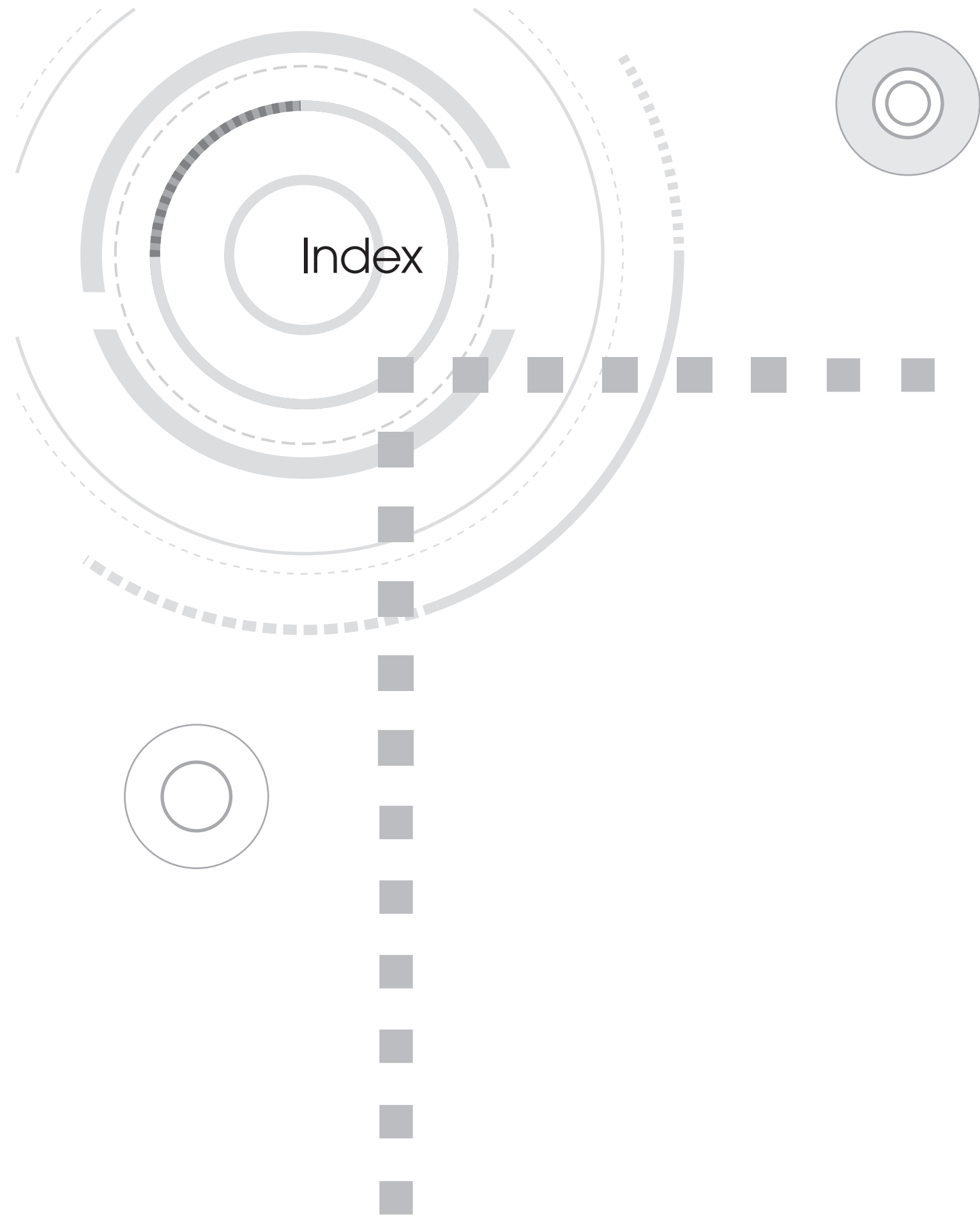
Unplanned settlement is the response of the urban poor in the cities of the developing world to their housing situation. These cities are going through a worsening socio-economic situation. Coupled with this is the lack of commitment by politicians to official government settlement policies. For those who are victims of these, a likely location to settle is within close proximity of an opportunity.

Although the poor settle near location of an opportunity in this case the planned settlement, the relationship between these two settlements is not one sided. For some of those in the planned settlement, particular roles for example menial labor can only be performed by those living in the unplanned settlement. In the unplanned settlement due to poor upbringing background, majorities of people are willing to engage in menial labor. Thus the settlement becomes a source of the much-needed labor by the planned settlement.

Although the two settlements need each other, there are issues for example some element of mistrust between these two. These have contributed to the kind of animosity that would be there between the planned and unplanned settlements when they are counterparts. Research is able to identify diversity of settlement types within one location as one of the solution to the housing condition in the towns of the developing world.

Keywords: planned, unplanned, settlement, counterpart, opportunities

ERRATA



INDEX BY AUTHOR & PRESENTER

A		
Abu-Obeid, Natheer	113	
Adachi, Kei	129	
Addison, Veronica	294	
Adler, Jennifer	298	
Ahrentzen, Sherry	251	
Akagi, Tetsuya	218	
Akers, Mary Anne Alabanza	145	
Akers, Timothy Alan	145	
Allen, April	149	
Al Ajari, Abdelaziz	281	
Amadani, Afsan	281	
Amedeo, Douglas	298	
Amidon, Jane	79	
Amor, Cherif	173, 194	
Anderzohn, Jeffery	212	
Anthony, Kathryn	272	
Antonitas, Lya Mainé	186	
Aoki, Takao	224	
Aragones, Ignacio J.	296	
Aries, Myriam	314	
Augustin, Sally	310, 313, 314	
Azmi, Sherif	281	
B		
Bafna, Sonit	306	
Bain, Brodie	202	
Ball, Jennifer	16	
Balsini, Mona	281	
Baran, Perver	141, 170	
Barazawa, Natsuki	252	
Barnes, Janice	191, 311	
Barnes, Richard	202	
Barnes, Rick	202	
Battisto, Dina G.	241	
Baudouin, Axel	255	
Beacham, Cindy	158	
Bechtel, Bob	191	
Becker, Franklin	308	
Benne, Marcie	233	
Beorkrem, Christopher	187	
Bergeron, Gabriel	210	
Betrabet-Gulwadi, Gowri	301	
Bilotta, Elena	308	
Bin-Ishaq, Najwa	281	
Birjandian, Zahra	281	
Bitgood, Stephen	233	
Boe, Ryan	186	
Boelter, Stephen	234	
Bokharai, Delyar	281	
Bolen, Fulin	141	
Bolzan de Campos, Camila	297	
Borun, Minda	135	
Bowers, Clint	199	
Brand, Jay	310	
Brand, Julie	144, 175	
Brisby, Traci	249	
Brzuszek, Robert	163	
Büchner, Simon	233	
Budd, Christopher	313	
Bullard, Robert D	5, 6	
Bustami, Leila Hamdi	181	
Butler, Peter	262, 269	
C		
Calkins, Margaret	206, 222	
Callender, Jassen	230	
Caproni, Albert	18	
Carter, George R.	150	
Cartwright, Charles	79	
Case, Duncan	186	
Chang, Hye-jung	161	
Chang, Jeehae	256	
Chanse, Victoria	295	
Chapin, David	162, 279	
Chapin, Meldrena	1, 3, 205	
Charles, Kate	314	
Chatterjee, Sudeshna	41	
Chaudhury, Habib	235, 242	
Chawla, Louise	128, 130	
Chiang, Chien-Chi	201	
Chimenti, Beatriz	282	
Chiu, Chi-Hsin	138	
Cho, Jiyeon	244, 252	
Choi, Jiin	244	
Christens, Brian	160, 167	
Christensen, David	279	
Chun, Bumseok	262	
Churchman, Arza	275	
Clements-Croome, Derek	312	
Clifton, Kelly J.	123	
Coleman, Jennifer	249	
Connell, Bettye Rose	222	
Contant, Cheryl	292	
Conway, Patricia	160	
Cook, Brian	302	
Coons, Alena	137	
Corry, Shauna	273	
Cortés, Mara	154	
Cosco, Nilda	127, 130, 133, 135	
Craig, David	22	
Crooks, Ryan	12	
Cubukcu, Ebru	317	
Cutshaw, Lisa	79	
D		
Danielsson, Christina	309	
Dantata, Nabila	281	
Davis, Gerald	283	
Davis, T.K.	167	
Day, Kristen	123, 168, 291	
Dearborn, Lynne	247	
Debarati Majumdar Narayan	131	
Degenholtz, Howard B	221	
del Rio, Vicente	189	
Demir, Evrim	127, 135	
Dennis, Jr., Samuel F.	127	
Dennis, Sam	127	
Despres, Carole	146, 272	
Deviren, A. Senem	301	
De Medeiros, Kate	220	
Diaz-Moore, Keith	159	
Diaz Moore, Keith	219	

Di Leo, Jeanette 263
Donovan, Gregory 186
Douglas, Jason 137
Drucker, Susan 160
Dukes, Stephanie 233
Dülgeroglu-Yüksel, Yurdanur 140, 204
Dunn, Matthew 260
Durrett, Jim 5
Dyke, Jules 16

E
Eastman, Charles M. 311
Edelstein, Michael 202
Egoz, Shelley 155
El Kharbawy, A. Sameh 172, 174
Erickson, Susan 268, 269
Esterhuysen, Wilandi 286
Evans, Gary W. 308
Evans-Cowley, Jennifer 79
Evans-Cowley, Jennifer S 254
Ewing, Reid 123

F
Fedrizzi, Beatriz 134
Ferguson, Sage 139
Fernando, Nisha A. 142
Fields, Desiree 137
Finn, Donovan 99
Fisher, Matthew 143
Flach, Ivelise 134
Flemming, Liane 282
Frank, Lawrence 124
Frumkin, Howard 5

G
Gale, Amanda 250
Gamble, Michael 12, 13
Gaston, Gary 167
Geboy, Lyn 209, 237
Gibson, Maggie 216
Gifford, Robert 191
Gobes-Ryan, Shelia 310, 313, 314
Goldsberry, Matt 186
Grath, Robert 185

Gravel, Ryan 291
Green, Brian 315
Green, Mitch 211
Green, Ray 299
Greenberg, Andrew 1,3,185
Grether, Paul 12
Griffiths, Patricia 222
Guerin, Denise 293
Gulersoy, Nuran Z. 141
Gumpert, Gary 160
Guneratne, Sanjeeva Ravin 227
Guney, Yasemin Ince 246

H
Ha, Mikyoung 202, 313
Hadjiyanni, Tasoulla 251, 255
Hamed, Rania 281
Hamin, Elisabeth 161
Hanyu, Kazunori 168, 175, 230, 252, 260
Haq, Saif 186, 188
Hargrove, Ryan 161
Harris, Debra D. 235
Harris, Troy 16
Harris-Kojetin, Lauren 208
Harrison, Sally 148
Hart, Roger 137
Hasan, Musleh Uddin 255
Hashas, Mine 288, 306
Hayashida, Daisaku 129
Hecht, Peter 169, 191
Heft, Harry 228
Hirata, Takayuki 294
Hitch, Ted 12
Hoehner, Christy 123
Hohmann, Heidi 265, 269
Hölscher, Christoph 233
Hong, Chunki 202
Hou, Jeffrey 267
Houser, Hank 16
Housley, Elizabeth 137
Howard, Sandra L. 302
Hur, Misun 262
Hwang, Yao-Rong 217

I
Iijima, Shun 175
Imamichi, Tomoaki 145
Imamichi, Tomoaki (226
Islam, Mohammed 180
Izadpariah Jahromi, Aida 137

J
Janda, Katie 202
Jerry Weisman 234
Joseph, Anjali 208, 212, 214, 238, 240
Juhasz, Joseph 172
Juhasz, Joseph P. 302
Jurczak, Susan 216

K
Kadonaga, Taku 294
Kageyama, Yuko 224
Kametani, Yoshihiro 281
Kang, Mihyun 293
Kanki, Yumi 224
Kaplan, Abram 166
Katen, Brian 178
Kato, Aki 284
Kato, Akikazu 287
Keable, Ellen 307
Keese, Alyssa 308
Kei, Adachi 214, 218
Keller, Amy Beth 237
Kenji, Otogao 132
Kepez, Orcun 220
Kiefer, Kristen 208
Kim, Kooksun 177
Kim, Kyuri 177
Kim, Minsoo 244, 247
Kim, Misun 182
Kirk, Nana 288
Klein, Melanie 195
Kocher, Sara 263
Kodama, Keiko 216, 224
Kodama, Masahisa 216
Koga, Takaaki 224
Kojima, Takaya 224

Konrad, Miriam 290
Kumazawa, Takayuki 266
Kunio, Funahashi 218
Kuo, Nai-Wen 223, 241
Kutty, Asha 147
Kwak, Yoonjung 244
Kwon, HyunJoo 182
Kyber, Ashley 268
Kyber, Ashley; 269

L
Lafazani, Christiana 176
Langhorst, Joern 154, 164
Lari, Shirin 281
Larson, Heather 186
La Roux; Pieter 284
Leather, Phil 306, 312
LeBlanc, W. Jud 13
LeBlanc, W. Jude 12
Lee, Ghang 311
Lee, Hyochang 313
Lee, Hyunjeong 244, 252, 256
Lee, Jeeyoung 250
Lee, Jin-kook 311
Lee, Junghwa 245
Lee, Jungmi 182
Lee, Megan E. 207
Lee, Soojin 177, 182, 250
Lee, SoYoung 245
Lee, Soyoung 182, 244
Lee, Sungkyung 243
Lee, Sungmi 244, 247
Lee, Sunmin 256
Lee, Yeunsook 177, 182, 244, 245, 247, 252
Lee, Yeunsook (256
Lee, Yoojin 252
Lee, Yuensook 250
Leone de Nie, Karen 288
Levi, Daniel 189
Lewis, Katrina 195
Lewyn, Michael 305
Le Roux, Pieter C. 286
Liao, Kuei-hsien 267
Lippman, Peter 186

Long, Yi-xiang 161
Long, Yixiang 141, 170
Lord, Sebastien 210
Lusk, Anne 122, 124
Luz, Lourdes 282

M
Mahmood, Atiya 235, 242
Majumdar Narayan, Debarati 128
Mallory-Hill, Shauna 283, 284
Mann, Thorbjoern 278
Mantero, Vicente 65, 254
Manzo, Lynne 264
Maple, Terry L. 231, 232
Marans, Robert W. 141, 150
Marcus, Clare Cooper 219
Margolin, Myra 127
Marquart, Katja V. 176
Marsh, Melissa 313
Martinez, Rubén O. 172
Masako, Koyama 214
Matsushima, Natsuki 230
Maxwell, Lorraine 130
Maxwell, Lorraine E. 137
Mazumdar, Sanjoy 160, 251
McCoy, Janetta 159, 191
McGrath, Robert 186
McMannis, Tristan 79
Meger, Sophia 30
Menon, Revathi 281
Meyer, Michael 18
Milestone, Juris 148
Milke, Doris 216
Miller, Nancy 258
Miller, Nancy G. 270
Mitchell, Mari 136
Mitrany, Michal 195
Moore, Robin 124, 127, 130, 135, 138
Morales, Ernesto 246
Morgan, Randy 167
Mumford, Karen 292

N

Nahawi, Hiba 281
Nahiduzzaman, Kh 255
Nakamura, Masayuki 294
Nallari, Anupama 137
Nasar, Jack 79, 123, 169, 196, 254
Nasar, Jack L. 317
Negreiros de Camargo, Erica 248
Nelson, Michael 160
Nettles, Sandra R. Murray 153
Nevárez, Julia 155
Nevarez; Julia 159
Newsham, Guy 314
Niiyama, Nao 294
Ninassi, Carlo 292
Nubani, Linda 171, 281
Null, Roberta 251

O
O’Connor, Zena 148
Obeidat, Asem 192
Ochieng, Crispino 265, 317
Oh, Chanohk 215, 257
Oh, Soyeon 250
Okuno, Masanori 294
Oliver, Carol 186
Oliver, Joshua 274
Ortiz, Eva-Leticia 143
Ouye, Joe 186
Owens, Patsy Eubanks 138, 264
Özdemir, Aydýn 199

P
Paik, Jinkyung 228
Pak, Hee Jin 126, 215
Palladi, Joseph 18
Palmer, Joni 186
Park, Heykyung 228, 229, 232
Park, Nam-Kyu 250
Parnell, Rosie 136
Patel, Mehul 12
Patet, Pradnya 128
Pauls, Jake 234
Paxson, Lynn 172, 264
Pedersen, Kari 186
Perkins, Douglas 160

Perry, Luke 16
Pevec, Illène 127
Piergiorgio, Rossi 303
Pinson, Daniel 146
Pollak, Stefan 107
Pontikis, Kyriakos 251
Popov, Lubomir 197, 275, 276, 277
Powe, Mike 168
Powell, Kevin 313
Powers, Matt 193, 200
Pramanik, Adetania 186, 188
Preiser, Wolfgan 284
Preiser, Wolfgang 284
Prophitt, David 16
Putterman, Joel 238, 289

R
Rader, Jeff 289
Raleigh, Mary-Jeanne 296
Ramadier, T. 146
Ramehr, Shirin 281
Rashid, Mahbub 22, 236, 312
Rhode, Jane (205
Rivlin, Leanne 162
Rivlin, Leanne G. 137
Robinson, Julia 251
Rodiek, Susan 209, 212
Rodríguez, Beatriz 157
Rogers, Carl 265, 269
Rosenheck, Thierry 276
Ross, Catherine L. 288, 292
Rottle, Nancy 202, 264
Rottle, Nancy D. 136
Rowley-Balas, Susan 191
Rubinstein, Robert L. 220
Ruga, Wayne 239
Rula Awwad-Rafferty 264
Rutt, Candace 15
Ryan, Robert L. 161

S
Saif Haq 234
Saito, Yasutaka 260
Saka, Iori 168
Sanford, Jon 160, 306
Sanoff, Henry 133, 136
Santos, Angeli 306, 312
Sarawgi, Tina 198
Sattar, Haroon 307
Sauda, Eric 187
Schatz, Sae 199
Schauwecker, Tim 163
Schermer, Brian 159
Schill-Fendl, Monika 285
Schnuck, Kathy 237
Schramm, Ulrich 285
Schuchard, Ronald 222
Seidel, Andrew 160
Seidel, Andy 191
Sevillano, Veronica 296
Shacklette, Ben 266
Shaker, Samar 281
Shepley, Mardelle 235
Sherrod, Alice 194
Shin, Jung-hye 55
Shin, Yeonsub 244
Shinar, Ami 275
Shramm, Ulrich 284
Shu, Chih-Feng 170
Sixsmith, Andrew 212
Sixsmith, Andrew (213
Skorupka, Agnieszka 137
Smith, Korydon 258
Snowdon, Suzanne 251
Sommer, Robert 231
Sorensen, Lena 160
Sosnowy, Collette 137
Speer, Paul 160
Staats, Petra 125
Steggell, Carmen D 207
Steinmayer, Karen 162
Striniste, Nancy 136
Subrahmanyam, Muthukumar 12
Sudeshna, Chatterjee 127

Sugiyama, Tadasu 216
Sugiyama, Takemi 211, 212
Szigeti, Françoise 283

T
Tabb, Phillip 301
Tai, An-chi 304
Taniguchi, Gen 287
Taylor, Patricia 185, 186
Tetsuya, Akagi 132, 214
Thering, Susan 159
Thompson, Catharine Ward 127, 211, 212
Tipton, Glenn 207
Toker, Zeynep 263
Tokman, Leyla 305
Tomotsune, Honda 294
Toothaker, Chris 186
Torgrude, Sue 234
Torres-Antonini, Maruja 253
Torres-MacDonald, MaryAlice 266
Travlou, Penny 138
Tsepas, Joyce 135
Tsepas, Sharon 179, 309
Tsunekawa, Kazuhiko 287
Turkoglu, Handan D 141
Tzeng, Szu-Yu 132

U
Jung, Eunjoo 182

V
Vargas-Moreno, Juan Carlos 300
Veitch, Jennifer 314
Verderber, Stephen 272
Verma, Amitabh 261
Vick, John 160, 167
Vischer, Jacqueline C. 283

W
Walden, Rotraut 286
Walker, Jason 163
Wallack, Catherine 162
Wang, Chia-Hui 223, 241
Warren, Karin 202

Watkins, Nicholas 165
Waxman, Lisa 226
Webb, Jennifer 162, 258
Wener, Richard 169
Weyandt, Tom 292
Wheeler, Gary 312
White, John 194
Wilcox, Mary Kay 151
Williams, Cynthia 298
Wilson, JoAnn 178, 194
Wilson, Johnny L. 183
Wineman, Jean 171, 312
Winfield, Fernando 154
Witt, Tom 192
Wolf, Jean 18
Wolf, Jean 18
Woolard, Cathy 291
Wooley, Helen 138
Woolley, Helen 280
Wridt, Pamela 127

Y
Yamacli, Rusen 258
Yamamoto, Toshiko 207
Yang, Sehwa 126, 257
Yim, Jungeun 244, 245
Yoon, Aram 202

Z
Zarola, Tony 306, 312
Zarrinjooee, Dariush 281
Zeynep, Turan 279
Zimmerman, Donna 272
Zimring, Craig 22, 208, 238, 243, 312
Zirnhelt, Amber 138

INDEX BY TILTLE

A

Accessibility of Support Spaces in Office Buildings 306
Actual Conditions and Directions of User-Interface
Services of Digitally Converged Home Appliances for
the Upcoming Ubiquitous Environment 182
Adolescents’ Consciousness of Environments for
Computer Use 126
Advances in Acute Healthcare Design Research 235
Advances in Methods for Researching Children’s
Environments 127
Advancing Animal Welfare with Creative Zoo Design
231
Almost Home: Exploring Culture Change in Long-term
Care Facilities 205
Amending Discord to Create Harmonious Design: A case
study 272
American Institute of Architect’s Design for Aging
Review: Overviews and Trends 205
Analysis of characteristics of shared spaces in recently
built apartment complexes in Seoul, Korea 244
Analysis of Eco-Friendly Features in Multifamily
Housing, An 244
Analysis of Environmentally Sustainable Interior Design
Practice, The 293
Analysis of Home Network Services and Environmental
Contexts in a Digital Home Exhibition in Korea 182
Analysis of Research Trends Regarding Shared-spaces in
Apartment Complexes in Korea 245
Analysis of User’s Visual Perception Regarding on the
Unified Plate Size of Sign System in Public Buildings:
The case of directional signage in a general hospital
228
Architecture of the City in Challenge, The 140
Assessing Leased Postal Facilities for Compliance with
Federal Accessibility Standards 279
Assistive Technology for Seniors: Comparing Online and
Classroom Teaching Formats 206
Attitudes Concerning the Role of Technology for Healthy
Aging 207

Autonomy and Competence-Press: Perspectives of
Residents in Assisted Living 220

B

Background Music, Work & Well-Being 306
Balancing Business Goals with Local Needs in Global
Office Space Standards 307
Bathroom as Catalyst and the Story Behind It, The 246
Beginning Curriculum for Environmental Design
Students, A 195
BeltLine’s Impact on Atlanta’s Health and Global Reach,
The 288
Between Veils and Revelations: The Interior Life of
(Women in) the Modern Middle East 172
Beyond Conflict in Participatory Community Research
& Design 264
Beyond Conflict: Contextualizing Saracoglu Housing
246
Beyond Conflict: The environmental preservation at
Wakanoura, Japan an attempt to revitalize residential
areas and a sightseeing spot 294
Beyond Conflict: A historic story of urban planning in
Atlanta 18
Beyond Conflict: Landscape Architecture and the
Denied Landscape of the Palestinian Nakbah 155
Beyond Conflict: Participatory Design with the
Homeless – A New Design for Peachtree-Pine 16
Beyond Conflict: Reconciling Health and the
Environment 5
Bridging the Gap between Programming and Design:
Recent experiences teaching health care studios in
architecture schools 272
Budgeting and Prioritizing R&A Projects 283
Built Environment – An Energy Perspective, The 294

C

Case for Synthesis between Research & Pedagogy:
Incremental Urbanism, A 13

Case Study Examining the Applicability of Using Health
Impact Assessment to Evaluate the Redevelopment of
Buford Highway, A 15
Case Study of Coex Mall for Effective Spatial Cognition,
A 229
Changes in the Stewardship Concept: Land ethics,
strategies, and outcomes 295
Changing Ideals in Landscapes: Maybe Suburbia Isn’t
So Rotten After All 288
Children’s Notions of Environmental Care: The case of a
low-income Muslim neighborhood in India 41
Citizen Participation in the Face of Conflict:
Community voices on the rebuilding and planning of
neighborhoods in the wake of Hurricanes Katrina and
Rita 160
Coalition for Health Environments Research and a
Recent Study: The Impact of Single-room Neonatal
Intensive Care on Users’ Health and Satisfaction 235
Collaborative Approach to Sustainable Land Use
Planning in McHenry County, Illinois, A 99
Community Design: Conflicts between the designers’
ideology & community needs 265
Comparative Study of House Supplier’s Differentiation
Strategy among Consumer’s Demands in Korea 247
Complexity of Conflict: Why some interactive games
seem so dangerous, The 183
Computer Game Playing and Spatial Knowledge 317
Conflict and Continuity between the ‘Old’ and ‘New’:
Comparison of Spatial Configuration of Two Cities in
China 141
Conflict and the Shaping of the National Museum of the
American Indian (NMAI) 172
Conflict between Growth & Quality of Urban
Life: Initial Findings from an Ongoing Study in
Metropolitan Istanbul 141
Conflict between Space and Crime: Exploring the
relationship between spatial configuration and crime
location 167
Conflict in Context: Episodes in indoor and outdoor
environments of preschools 131
Conflict in Meaning, A 192
Conflicted American Dream: The Costs of
Homeownership in a Predatory Market, The 247
Conflicting Role of ‘Place’ in Place-Based Youth
Programs, The 127

Conflicts in Environmental Psychology 226
Conflicts in the Design of an Agricultural Campus in a
Capital City, The 199
Container Transformation: A Mobile Work Place 307
Creating a Homelike Environment for Group Living
among Dementia Individuals Based on Environment-
Behavior Studies 214
Creating Digital Worlds: Gaming and Massively
Multiplayer Environments and Communities 185
Creating the Learning, Serving and Connecting
Community: A Brownfield Study 207
Creativity in Addressing Conflicts in Domestic Dwelling
248
Critical Review of the McNamara Center: A Signature
Facility in Conflict with Building Users, A 273
Cultural Influences on Young Children’s Social and
Spatial Negotiation Strategies 128
Cumulative Risk: A Model of Design and Health
Impacts 308
Curriculum of Place: Narrative Inquiry into the
Network of Learning in Atlanta’s Washington Park
Neighborhood 153

D

Data Gathering by Environment-Behavior Professionals:
A Working Group to Explore Innovative Techniques
and Instruments 203
Deadly Waiting Game: Why Some Communities Must
Wait for Health & Environmental Protection 6
Dealing with Conflict and a Way to Solve It: The UN
Local Urban Observatories in Veracruz, Mexico 157
Decade of Patient and Family Centered Care in ICU
Design: A Survey of the Best Practice Examples, A 236
Defining Space with the Invisible: Boundary-Making on
Sidewalks 142
Density, Fear, and Terrorism: How 9/11 affected people’s
desire to live in an urban area in Franklin County,
Ohio 65
Design Directions of Nursing Home for the Dementia
from the Staff’s Point of View 215
Design for Gathering: The Value of Familiar Strangers
226
Design for Public Space Interaction; Mitigating
Conflict through Design for Experience and Cultural
Ergonomics 249

	<i>Design Research in Practice: Evolution and Findings of an Evidence-Based Design Research Project</i> 237
	<i>Design, Meanings and Symbolism of the American Mosque</i> 173
	<i>Designing Campus Landscapes that Reduce Health Disparities: A Study Comparing Student Bicycling Culture and Campus Bike-Ability</i> 200
	<i>Designs for Peace: Student Interpretations of Interior Environments that Promote World Peace</i> 158
	<i>Design-Studio Classroom Environments: Design & Satisfaction</i> 192
INDEX	<i>Desired and Achieved Privacy in Intergenerational Homes</i> 250
Title	<i>Devastated Landscapes: EDRA Perceptions</i> 160
	<i>Developing the Evidence Base for Healthcare Design</i> 238
	<i>Dialogue Through Art: A Forum for Bridging East-West Cultural Divides</i> 174
	<i>Difference in Satisfaction with Office Environment among Employees in Different Office-Types</i> 309
	<i>Dilemma of Storefront Churches: Balancing Preservation, Economic Revitalization and Equitable Development, The</i> 147
	<i>Discordant Frames: The Cinematic (Re-) Presentation of Urban Conflict</i> 154
	<i>Diversity of Settlement in a Settlement: A way forward in cities of the developing world – case of Nairobi</i> 317
	<i>Does a Childhood in Nature Matter?</i> 296
	<i>Does Building Evaluation Pay?</i> 284
	<i>Does Location of the Day Room Make Difference in Daily Lives of the Adult Care Home Residents?</i> 220
	<i>Don’t Just Listen: Do Something! Reflections about moving from research to action in action-research</i> 128

E
<i>Eco-friendly Planning Features of Apartment Housing Complexes and the Environmental Attitude of the Residents in Korea</i> 250
<i>Ecological Restoration after Wildfire: Healing Community Spirit</i> 161
<i>Economics of Building Performance Evaluation: BPE Experiences from Around the World , The</i> 284
<i>EDRA’s Impact: A Working Group</i> 159
<i>EDRA’s Residential Environments Network – Scope, role, and future</i> 251

<i>Effect of direct rays from the sun through a window on the sense of relaxation</i> 252
<i>Effect of Nursing Home Environment on Quality of Life</i> 221
<i>Effectiveness of Secretory Immunoglobulin A as an Evaluate indicator of Environmental Stress for Elderly with Dementia, The</i> 216
<i>Emerging Opportunities for Environment & Behavior Expertise – Addressing Student Concerns</i> 191
<i>Encouraging Physical Activity among Retirement Community Residents – the Role of Campus Commitment, Programming, Staffing, Promotion and Community Type</i> 208
<i>Engaging Multiple Stakeholders with Different goals and Values toward Resolving a Future Transportation Plan</i> 289
<i>Environment, Action Research & Culture Change</i> 209
<i>Environmental Analysis of Pathology Laboratory Patient Service Centers: A Pattern Language Approach</i> 274
<i>Environmental Assessment of Dementia Care Units for Older Adults: Added benefits of using the Professional Environmental Assessment Protocol (PEAP) in addition to the Therapeutic Environmental Screening Survey (TESS-2+)</i> 216
<i>Environmental Behavior Study About ‘Places’ Constructed by School Children Nearby Their Routes to/from School: A case study in small and depopulated local town</i> 129
<i>Environmental Concern: Assumptions about other’s people behaviors and attitudes</i> 296
<i>Environmental Correlates of Physical Activity at the Workplace: Four Case Studies in Atlanta</i> 309
<i>Environmental Management & Psychology: Promoting synergies through sustainable development in organizations – applications to Brazil</i> 297
<i>Environments that Enable and Encourage Physical Activity: U.S. Walking and European Bicycling Designs</i> 122
<i>Envisioning Intelligent Built Environments</i> 185
<i>Evaluation Models & MAPLE/D: A Meta-Method to Support Architectural Planning and Design of Complex Buildings</i> 285
<i>Evaluation of Roadside Vegetation: Effects of background and of viewpoint of participants as walkers, The</i> 260

<i>Everyday: Conflict and Context in the Built Environment, The</i> 260
<i>Examining life-cycle costs of different bedroom configurations in nursing homes</i> 222
<i>Experiment on the Environmental Factors of Identification for the Disorientation of Demented Elders in the Special Care Unit, An</i> 217
<i>Exploration of Older People’s Immediate Environments and Their Well-Being</i> 209
<i>Exploring Suburban Alternatives with Students: West Liberty, Iowa</i> 265
<i>Exploring the Characteristics and the Function of College Students’ “Third Place”</i> 175
<i>Exploring the Fear or Attractive Features in a Park</i> 168

F
<i>Factors Determining Behavior Dealing With Conflict of Opinions in Decision Making for a Community Development Scheme</i> 266
<i>Finding Middle Ground for Design: North Philadelphia from Inside and Out</i> 148
<i>Fitting the New with the Old: A prototype approach to contextual fit</i> 113
<i>Florida Institute for Public Health: Collaborative Master Plan Development through State and Local Partnership</i> 238
<i>Frogtown: The impact of cultural formation on built form</i> 175
<i>From Barrier to Threshold: Bridging Contested Spaces</i> 230
<i>From Blank Canvas to Masterpiece: Creating Innovation in the Workplace</i> 310
<i>From Conflict to Concord: Facade Colour and Aesthetics Response</i> 148
<i>Functional Programming and Organizational Design</i> 275

G
<i>Gauging the Transdisciplinary Qualities and Outcomes of Doctoral Training Programs: An International Comparison</i> 195
<i>Getting to Effective Action and Advocacy for Environments for Children</i> 130
<i>Goals in the Design Studio: The Essential Motive to Learn</i> 193

<i>Growing Older in Suburbs: Territorial Mobility Strategies across Three Age Groups</i> 210
<i>Guide for Evaluating Plans for High-Rise Buildings, A</i> 275

H	INDEX
<i>Hate: A Time for Growing Concerns. Emerging Issues for Urban Design in Places That People Hate</i> 154	Title
<i>History of Freedom Parkway: Transportation planning, traffic engineering, and public involvement perspectives, The</i> 18	
<i>Holographic Paradigm: The Stammer and the Interstice in the Abeyance of the Crystalline Image in Godardian Film Grammar, The</i> 227	
<i>Homeless Interactions with the Built Environment: A Spatial Pattern Language of Abandoned Housing</i> 166	
<i>How Building Performance Evaluation Fits into the German Educational Program</i> 285	
<i>How Can We Make Mid-town Urban Areas More Supportive of the Needs of Young Children and Their Caretakers?</i> 137	
<i>How Designers Use Programming Information</i> 276	
<i>Hudson River Park Zone 4: A case study of contested space</i> 298	

I
<i>Idea of ‘City’ – A Working Definition, The</i> 143
<i>Identifying Conflict: Visualizing Change</i> 266
<i>Identifying the Environmental Conditions that Support the Sustainable Creation of ‘Generative Space’ in Settings for Health Care and Healthcare Improvement</i> 239
<i>Image and Perception of Mexico City</i> 143
<i>Impacts of Humidification with an Air Purifying Substance on New House Syndrome Symptoms</i> 252
<i>Important Role of Enclosure in the Open versus Closed Office Debate: A quasi-experimental case study, The</i> 310
<i>Improving Students’ Attitudes by Altering the (Physical) Classroom</i> 199
<i>Improving Wayfinding Information for Nursing Home Residents</i> 222
<i>Inclusive Design – Layering Influences with Senior Citizens for a More Democratic Creative Process</i> 210

	<i>Incremental Urbanism: The auto & the pedestrian reconsidered in strip redevelopments</i> 12
	<i>Information Technology Exploitable Office Layout Design Process Developed with GTPPM (Georgia Tech Process to Process Modeling, An</i> 311
	<i>Inner Conflicts in Newcomers to New York City: A love-hate relationship?</i> 145
	<i>Insights into the Pebble Projects: The Role of the Physical Environment in the Hospital of the 21st century</i> 240
	<i>Interior Treatments in Subway Stations of Seoul for Easy Wayfinding</i> 232
INDEX	<i>International Building Performance Evaluation Symposium</i> 283
Title	<i>International Innovations in Environments for the Aging</i> 211
	<i>Intuitive and Sensate Designers in a Collaborative Studio</i> 194
	<i>Is Cohousing’s Promise of a Sense of Community More Like Social Change?</i> 253

L

	<i>Labyrinth as Environmental Space for Healing, Resolution & Renewal, The</i> 176
	<i>Ladadika: Place Constructing Culture/Culture Constructing Place</i> 176
	<i>Landscape as Maker of Identity: A Case Study of Le Corbusier’s Capitol Complex in Chandigarh, India</i> 261
	<i>Learning from Conflicts and Differences in a Community Service Studio</i> 267
	<i>Levels of response in the conceptualization of the environmental construct neighborhood</i> 298
	<i>Linking Marketplace Innovation and Organizational Intent to Workplace Strategy</i> 311
	<i>Long-term Care</i> 220
	<i>Low-cost Measures for Environmental Renewal through Direct Technological Transfer</i> 107
	<i>L-Shaped Classroom: A New Learning Environment, The</i> 133

M

	<i>Manifesting Conflict – Memorials, Counter-Memorials and Public Space</i> 164
	<i>MARTA: Much Ado Regarding Topographical Arrangements</i> 290

	<i>Martin Luther King Jr. Elementary School Grape Arbor: Melding Community Design, Service Learning, and Design/Build</i> 268
	<i>McMansions and Conflict: The Regulation of Super-Sized Houses</i> 254
	<i>Measuring Environmental Perceptions for Active Living Research</i> 123
	<i>Measuring Urban Design Qualities Related to Walkability</i> 123
	<i>Meet the Editors</i> 191
	<i>Middle Childhood Outdoors: How can evidence be used to create effective urban design policy?</i> 138
	<i>Modes of Expression of “Koreanity” in Modern Interior Architecture and Design, The</i> 177
	<i>Modular Versus Landscaped Office: A comparison of space, behavior and environmental perception</i> 312
	<i>Moral Design: Reframing the Argument for Design Research</i> 196
	<i>Movement through Public Places: Patterns and Conflicting Theories</i> 233
	<i>Myth and Reality of Housing the Poor through Public Participation in Dhaka, The</i> 255

N

	<i>Nature and Rate of Change in Hospital Laboratories, The</i> 241
	<i>Neighborhood Environments and Older People’s Health and Outdoor Activity</i> 211
	<i>Neighborhood Satisfaction, Physical & Perceived Naturalness & Openness</i> 262
	<i>New Audit Tools for Measuring Built Environments for Active Living Research</i> 123
	<i>New Ideas on Old Tracks: How the Beltline is reshaping Atlanta</i> 291

O

	<i>Office Design and Productivity</i> 312
	<i>Older People’s Immediate Environments and Their Well-Being</i> 212
	<i>Opinions and Strategies for Change in Brazilian Public Schoolyards</i> 134

P

	<i>Pathway Aesthetics: Responding to the empirical challenge for physical activity research</i> 124
--	---

	<i>Patterns of Pedestrian Flows and Static Occupancy of the Diag of University of Michigan, City of Ann Arbor, Examined by Space Syntax Analysis</i> 201
	<i>Perceptual Impacts of the ‘Sea Change’ Phenomenon on Australian Coastal Towns</i> 299
	<i>Personal Conflict to Design Media: Landform as a Metaphor for Experience</i> 262
	<i>Physical Environment of the Workplace as a Stress Buffering Mechanism, The</i> 312
	<i>Physical Features of Environments that Provide Bias in Cognitive Maps</i> 230
	<i>Picture Preference Survey: Responses to European Cycle Tracks</i> 124
	<i>Place of Environment & Behavior Studies in the Realm of the Architectural Curriculum, The</i> 197
	<i>Places of Animal and Human Confinement</i> 231
	<i>Planning for Rapid Environmental and Developmental Change in a Developing Context: The case of the Osa region of Costa Rica and the application of participatory processes</i> 300
	<i>Planning, Demographic Change, and the Racialization of Place in Costa Mesa, California</i> 291
	<i>Playing Outside Together: The inclusion of disabled children in play in primary school playgrounds in England</i> 280
	<i>Plugged-In and Tuned-Out: Digital Technology and Public Space</i> 186
	<i>Post-occupancy Evaluation of Color Choices and the Favored Color Image of University Classrooms</i> 202
	<i>Post-Occupancy Evaluation of Negative Pressure Isolation Rooms</i> 241
	<i>Post-occupancy Evaluations – Evidence Based Design for the Aging</i> 212
	<i>Post-occupancy Evaluations of Six Childcare Facilities in Dubai, United Arab Emirates</i> 281
	<i>Practical Theory-based Approach to Action Research in Generational Poverty Survivor Communities, A</i> 159
	<i>Practice Research Discussion: The US General Services Administration Workplace 20/20 Deep Dive Process and Developing Effective Practice Research Approaches</i> 313
	<i>Preference of the Elderly in Architecture Design of Long-term Care Facilities – An Example from Taipei</i> 223
	<i>Project Types & Programming Methods</i> 277

	<i>Promoting Undergraduates’ Emerging Ideas of Sustainability through Journals and Design Projects</i> 301
	<i>Public Library Evolves: Resolving Conflict through Design, The</i> 178
	<i>Public Perception of Productive Land Uses: Franklin County, OH</i> 79
	<i>Public School Siting and Design Implications in Fulton County, Georgia</i> 135

Q

<i>Qualitative Improvement of the Childcare Environment Based upon the Characteristics of Environmental Settings as Selected by Staff Caregivers</i> 132	INDEX
Title	

R

<i>Reclamation and the Changing of a Cultural Perspective</i> 302
<i>Reconstruction after the 2004 Tsunami: Ecological and Cultural Considerations from Case Studies</i> 161
<i>Recovering Virginia’s African-American Landscape</i> 178
<i>Recreational Spaces for the Visually Handicapped: Taking Part in a Guided Bus Tour</i> 281
<i>Reducing Nursing Errors and Increasing Efficiency through Environmental Design in Acute Care Settings</i> 242
<i>Regional Trail Planning</i> 268
<i>Regional versus Local Spatial Planning in SuperRegions: The challenges and opportunities</i> 292
<i>Reichstag, Germany & Pershing Point, Atlanta: Cases in Preservation and Cultural Baggage</i> 179
<i>Re-inhabiting Frogtown: migration and urban uses &forms</i> 144
<i>Remaking Minnie Street: The Impacts of Urban Revitalization on Pedestrian and Crime Safety</i> 168
<i>Research Group “A Barrier-Free Life”: Universal Design for the Brazilian Houses, The</i> 282
<i>Research-based Design of Family Science Learning Settings in Museums</i> 135
<i>Re-Thinking Consumerism – Material Possessions and Identity Construction in Residential Environments</i> 255
<i>Rethinking Environmental Psychology from a Pragmatist Perspective</i> 228

	<i>Rethinking Evaluation Tools for Educational Environments</i> 278
	<i>Revitalization of a Historic Building through Functional Rejuvenation: A Performance Evaluative Study of Workplace Environmental Conditions</i> 286
	<i>Role of Evidence-Based Design in the 21st Century Hospital, The</i> 243
	<i>Role of Law in Preserving Visual Privacy in Traditional Islamic Cities and Contemporary North American Cities, The</i> 180
INDEX	<i>Role of Space Syntax in Explaining the Geographical Patterns of Crime in Residential Neighborhoods, The</i> 171
Title	<i>Roundtable on Crime and the Built Environment: Environmental Criminology: Network Inception</i> 169
	<i>Ruins, Misunderstandings and Rage: Representations of Urban Conflict on Film</i> 155
	<i>Rural Urbanism: A placemaking theory at the developing urban edge</i> 301

S

	<i>Safer and More Legible Environment for Persons with Dementia Based on Experimental Research of Their Visual Search</i> 218
	<i>Schools for the Future – the Users Perspective</i> 286
	<i>Science of Signage – How Empirical Research Can Contribute to User-Centered Design, The</i> 233
	<i>Sedentary & Fleeting Activities & Their Spatial Correlates in Offices</i> 22
	<i>Segregation, Memories, and Sense of Place in a Small-town Theatre</i> 149
	<i>Self-Reported Symptoms of New House Syndrome and Residents’ Reponses</i> 256
	<i>Shared Imaginations: Architecture and built environment education for young people</i> 136
	<i>Siting a Costal Trail: A Phenomenological Approach</i> 263
	<i>Small Town Parks</i> 269
	<i>Social Capital and Its Impact on Neighborhood Satisfaction and the Desire to Move</i> 150
	<i>Social Change and Residential Environment: Change of Ondol (Korean heated floor) and domestic life in Korea during the 20th century</i> 55
	<i>Social Equity and Spatial Considerations in a Planned Mixed-Use Urban Redevelopment Community</i> 302
	<i>Space Norms of Korean Households</i> 257

	<i>Spatial Configuration and Actual Crime Locations in a University Campus Setting</i> 170
	<i>Spatial Layout and Vulnerability of Burglary and Car Crime: Case studies from UK and Taiwan</i> 170
	<i>Standards for Accommodating Bicycles: A European Perspective</i> 125
	<i>Strategies for Sustainable Campus Design and Planning</i> 202
	<i>Streets and Sidewalks: Contested Spaces in a Philippine City</i> 145
	<i>Stress & Studios: A post-occupancy evaluation of studio spaces in the College of Environmental Design and Planning</i> 30
	<i>Student and Community Objectives in Design Extension Projects: Common Ground or Grounds for Conflict?</i> 269
	<i>Study of the “Transparency” of Office Building Lobbies, A</i> 313
	<i>Study on the Clarifying Environmental Problems of the Nursing Homes for the Elderly – Using Professional Environmental Assessment Protocol Japanese Version, A</i> 224
	<i>Study on the Needs of Space Design in Day Care for Early Intervention: Three case studies of child development centers in Kaohsiung, A</i> 132
	<i>Success Stories or Not: Service Learning Best Practices</i> 270
	<i>Sustainability as Frontier</i> 303
	<i>Sustainability in Ancient Chinese: A living model of a time-space system of feng-shui theory</i> 304

T

	<i>Teaching Law Students about Sprawl and the Law</i> 305
	<i>Technological Innovations: Conflicts in Social and Built Environments</i> 186
	<i>Teens and Conflict in the Urban Landscape</i> 138
	<i>Temporal Reconciling of Sub-Cultural Groups in Leisure Environments: The Case of Abdoun Circle in Amman-Jordan, The</i> 181
	<i>Territory in Temporary Shelters: Media-Documented Space Claiming Following Hurricane Katrina</i> 162
	<i>Terrorism, Natural Disasters and Conflicts Over Space: How Can EDRA Attendees Contribute to Understanding These Contemporary Threats?</i> 162

	<i>Terrorizing Commemoration: Design without Guilt at the World Trade Center Memorial</i> 165
	<i>Theatre of Embedded Intelligence</i> 187
	<i>Theory and Reality of “Ageing in Place” Policies, The</i> 213
	<i>Three Approaches, One Goal: Advancing Therapeutic Garden Design for Those with Dementia</i> 219
	<i>To Build or Burn: Conflicts of Development and Wildfire</i> 163
	<i>Tools for Researching Preschool Environments to Support Active Living Policies for Young Children</i> 133
	<i>Towards a ‘New’ Light: Examining the Role of Lighting Software in Design Education</i> 198
	<i>Transformation of the Built Environment and Vernacular Houses</i> 258

U

	<i>Universal Design Approach for Planning, Design and Management of Terminal Building of Chubu International Airport, Japan</i> 287
	<i>Unraveling the apparent conflicts in revitalizing small-scale downtown as the center of retail and community life</i> 151
	<i>Urban Design Project for the Lafayette Neighborhood, Nashville, TN: Addressing the issues of homelessness</i> 167
	<i>Urban Sprawl & Car Discrimination: Elderly & Teenagers in Exurbia</i> 146
	<i>Use of Virtual Environment as a Tool for Wayfinding Research in Architecture: Comparison of Virtual and Real Environments, The</i> 188
	<i>Using Environment-Behavior Research to Inform Parent Education and Early Childhood Caregivers Training Programs</i> 137
	<i>Using Geographic Information Systems to for Objective Analysis of IRS Post-of-Duty Locations</i> 292
	<i>Using Q-Sort to Evaluate Environmental Components of Home</i> 258

V

	<i>Value through Conflict: Bringing Research into Objective Analysis</i> 203
	<i>Video Documentary: The Living Salk Institute</i> 279

W

	<i>Wayfinding and Egress Issues: Conflicts and Concords between Researchers and Designers</i> 234
	<i>Web-Based Surveys as an Effective Tool for Community Participation in Urban Design – A University and Community Outreach Project for Redding, CA</i> 189
	<i>What are the Boundaries of Architecture?</i> 204
	<i>What Features Make Desirable Common Spaces at Elder Facilities?</i> 224
	<i>When the Hospital is Your Community: Envisioning Healing Gardens with the Cultural Paradigm</i> 243
	<i>Where People Walk: Environmental Factors Associated with Choice of Walking Paths by Older Adults</i> 214
	<i>Windows & Office Worker Satisfaction: Positives & negatives</i> 314
	<i>Workplace Case Studies</i> 314
	<i>Workplace is a Strategic Tool in Today’s Facilities Manager’s Toolbox, The</i> 315

Y

	<i>Young People’s Conflict, Contradiction and Comfort in Public Space: an Action Research Project in New York City</i> 139
--	--

Z

	<i>Zoo Design, Redesign, and Reconstruction</i> 232
--	---

INDEX BY KEYWORD

9/11, 65, 164, 165

A

academic, 194-195, 198-201, 203, 221, 226, 228, 274, 297

accessibility, 212, 279-287

INDEX
Keyword action research, 139, 158-159, 209, 216, 224, 253-254

active living, 122-125, 212, 214

adaptable, 304

adult day care, 209

advocacy, 129-130, 133

aesthetics, 122, 124, 145, 154, 161, 164, 175, 192, 211, 227-228, 261, 272

African-American landscapes, 179

aging in place, 207, 210, 224

airport design, 287

ambient factors, 309

anthropology, 261

apartments, 244-247, 257

architectural education, 137, 198, 273

programming, architectural, 273

architectural studio, 31

architecture, 16-17, 135-137, 139-140, 151, 168, 173-175, 181, 187-189, 193-195, 197-201, 203-208, 222-226, 230-231, 261-270, 272-275, 310-311, 315

art, 173-175

assessment, 145, 154, 260-261, 274, 280, 300

assisted living, 220

autonomy, 220-221

B

bathroom, 245-246

Bauhaus, 195

beginning design students, 195

behavior change, 145, 181, 197, 243, 296, 312

bicycle paths, 124-125

brownfield reclamation, 208

building economics, 283-285

building life cycle, 285-286,

building performance evaluation, 283-287

bus tour, 281-282

C

campus, 170, 186, 199-203

case study, 131, 134-135, 139, 143-145, 151, 158-159, 162-163, 167, 173, 195, 217, 241, 248, 261-262, 268, 270-272, 281-282, 295-296

change process, 297-298

childcare centers/playgrounds 129-133, 135, 138, 281

children & youth environments, 126-139, 153, 265, 281, 283, 297

China, 141-142, 162, 304

city planning, 19, 146, 288, 317

classroom, 132-134, 202

coastal settlements, 300

coastal trail, 263

cognition, 194, 200, 218, 228-229, 234, 314, 317, 322

cognitive, 194-195, 231

cohousing, 253-254

collaborative processes, 273

color, 202

communication, 173, 192, 211, 267, 272,

community, 263-272, 189-190

conceptual framework for design, 278

conflict, 18-19, 153-168, 183-186, 249, 266-267

consensus building, 266

constellating settlement design, 302

construction, 130, 222, 238, 243-244, 304

consumer demand, 247

content analysis, 155, 245-247

contextualism, 178

cost benefit analysis, 284-285

creativity, 248-249

crime, 141, 167-171

cross-cultural contexts, 283

crowding/density 163

culture, 131, 154-156, 162, 164, 172-181, 192, 211, 230, 302

culture change, 205, 209

curriculum, 197-199, 266, 268-270, 286, 305

cyclists, 263,

D

data collection methods, 123

de-institutionalization, 224

decision making, 266, 285

deconstruction, 227

dementia, 214-219

design and planning process, 278
design for aging, 205-208, 211-213, 217-219, 222, 224-225, 240, 283

design project, 198-200

design related factors, 309

design research, 307

design review, 187, 195, 252, 274, 276

design studies, 234

detail area plan, 255

developing country, 146

development retardation, 132-133

digital convergence, 182

digital environments, 182-190

disabled children, 280-281

disasters, 160-162, 164

E

early intervention, 132-133

ecological, 160-163, 245

economic development, 146-147

ecosystems management, 231-232

EDRA, 159-162, 191, 251

education, 135-137, 191-204

efficiency, 285

elderly, 205-225

energy, 294-296

engineering, 295

environmental assessment, 216-217, 274

environmental attitude, 250-251

environmental condition and consciousness, 126

environmental education, 136

environmental issues, 297

environmental management, 297-298

environmental perception, 123
environmental psychology, 159, 226-234, 263, 298

environmental risk, 74, 76

environmental setting, 132

equestrians, 263

equilibrium, 249

evidence-based design, 237-238, 240-241

exhibit design, 136

experiment, 189, 207, 217-219, 228-229

expressional methods, 178

F

facet approach, 286-287

facility management, 285-286, 293

facility programming, 197-198, 275-278,

family centered care, 236-237

feng-shui, 304

film, 155, 205, 227

flood, 162

functional features, 309

functional programming, 275

functional rejuvenation, 286

functionality, 284

G

games/game play 184

gender, 220

GIS (geographic information system) 141, 166, 168, 204, 293

globalization, 154, 288

graphic design, 229

group living, 214-215

grouping, 299

H

hate, 154-155

healing environments, 159, 162, 176, 219, 235-243

health, 130, 133, 162, 176, 209, 211-213, 224, 235-243, 272-273, 308

healthcare, 217, 224, 235-243, 273, 308

historic survey, 179, 181

historical design, 258

home appliances, 182-183

homeless, 166-167

homelike, 214-215

hospitals, 228-229, 235-238, 240-243

housing, 166-170, 186-187, 207-209, 244-259, 265, 276

human activities and built environment, 258

hurricane, 160, 162

I

in-depth interview, 223-224

indoor air quality, 252-253, 257

indoor/outdoor 131

indoor spaces, 234

innovative school design, 286-287

institutional design, 178

interdisciplinary, 128, 158, 176, 221, 240, 252, 256, 271, 276, 310, 315

interior design, 158-159, 195, 198-199, 216, 224, 227, 261, 274, 293, 308, 310-311, 315,

interior treatment, 232

international, 140, 145-146, 195-196, 211, 244, 262

interpretive center, 272

Islamic architecture, 174, 181

J

Japan, 129-130

K

Korea, 162, 177-178, 256-258

L

landscape, 157, 161, 178-179, 186, 243, 294

landscape architecture, 135-136, 151, 168, 173, 195, 199-201, 219, 263, 266, 268-270, 302

landscaped office, 312

law, 305

leadership, 239-240

learn-by-doing, 190

learning, 133-137, 159, 206-208, 268, 271

leisure spaces, 244

library design, 178, 284

lighting, 198, 252, 314

literature review, 233, 237

living environment, 218-219

living pattern, 304

lobby, 313-314

long term care, 132, 223-224

low income, 146, 169, 248

M

mapping, 263

meanings and symbolism, 173-174

INDEX

Keyword

meanings of home, 210,
memorials, 164-165,
memories, 149-150,
meta-method MAPLE/D 285
mobility, 135, 143, 146, 210, 283,
290, 295, 308
modernity, 172, 175,
monumental architecture, 178
movement, 201-202, 232-233, 295,
312
multi-family housing, 244-247,
257,
museum, 136

Narratology, 246
natural disaster, 162,
naturalness, 262
nature and ecology, 260-263
negative-pressure isolation room,
242
negotiation, 131
neighborhood, 129-130, 139,
147-148, 153, 158, 160, 175-177,
248-251, 255, 266-267, 291, 303,
305
neighborhood planning, 135, 148,
150, 168-170,
neighborhood satisfaction, 69-70,
150, 262, 326-327,
network architecture, 302
new house syndrome, 252-253,
256-257
noise, 192-193, 237-238, 242, 254,
308-309, 313
nosocomial infection, 222, 242
nursing home, 205, 213-215, 221-
223

Office design, 309, 312
online learning, 207
open planning, 302,
organizational design, 275, 277
outdoor activity, 211-212, 221, 326

Outdoor environment, 97, 130,
133, 138, 296

Participation, 127, 139-140, 148,
150, 158-160, 167, 173, 176, 187,
189, 204, 208-209, 211-213, 253-
255, 258, 261, 263-271, 273, 277,
282, 295-296, 306
path design, 214
pathways, 122, 124, 263
pattern language, 153, 166, 274,
pedagogy, 194-195, 200, 263-264
pedestrian movement, 233, 243,
pedestrians, 142, 146, 169, 263
performance evaluation, 278,
283-287
performance-based design, 283
personal space, 162, 230, 274, 296
phenomenal transparency, 313-
314
phenomenology, 127, 153, 204,
230, 263
physical measures, 262
place attachment, 127, 144, 147-
148, 160-162, 165, 175, 179, 211,
227, 259
place character, 300
place identity, 162, 229, 232
place memory, 147-148, 157, 160,
162, 179, 211
place-construction, 130
placemaking, 127, 173, 205, 301-
302
planned, 140, 156, 203, 276, 280,
302, 317
planning and design methods,
285
planning education, 105-106, 196
planning features, 250-251
post occupancy evaluation, 202,
213, 217, 241-242, 272-287
poststructuralism, 227

Preservation, 147, 160-161, 177,
179, 265, 294, 302
primary school playground, 281
privacy, 38, 162-163, 180-181, 221-
222, 250, 308-310, 312, 314-315
professional practice, 204, 226,
238, 252, 270, 280, 289, 293, 306
programming (architectural),
30, 190, 197-198, 208-209, 256,
272-287
psychology, 153, 159, 226-234,
261, 263, 296-298, 310-311, 313,
315
public health, 5, 6, 9, 12-14, 124,
238-239, 288
public participation, 79, 105, 255,
263, 269
public safety and welfare, 138,
159, 161, 168-170
public space, 47, 137-139, 233, 249,
298, 303

Qualitative, 21, 127-128, 132, 155,
161, 173, 192, 194, 200, 218, 227,
263, 266, 268-270, 274, 288, 290
qualitative methods, 21, 136, 194,
200, 273
qualitative research, 127-128, 148,
155, 161, 192, 218, 227, 242, 246,
259, 263, 266, 268-270, 274, 290
quantitative, 113, 127, 131, 136,
149, 150, 159, 221, 293, 297

Real estate, 187, 204, 285, 293, 313
reconstruction, 142, 160-162, 232,
278
recreational spaces, 281-282
regional planning, 101, 189, 196,
268, 292
relaxation, 39, 176, 246, 252
research in practice, 204, 237-238
research methodology, 203, 247,
273

Research-informed design, 6, 3,
191, 206
residential, 55, 62-64, 70, 74, 100-
103, 158, 171, 186, 210, 220, 239,
244-259, 276, 288, 289, 302
resource management, 263
retirement communities, 208-209,
212, 214
revitalization, 147-148, 151, 168-
169, 189-190, 200, 264, 286, 291,
294
rural urbanism, 301, 302

SARS, 241-242
schools (and classrooms), 10, 30,
51, 129-131, 133-137, 153, 201,
203, 278, 304-305
segregation, 48, 50, 57, 149-150,
179
sense of place, 54, 148-150, 173,
302
service learning, 267-268, 270-
271
settlement, 5, 41, 43, 45, 107, 143,
162-163, 258, 302, 304, 317
shared spaces, 244-246
signage, 79-81, 88, 93-97, 223,
228, 233-234, 287, 309
sketch map, 229, 317
small-towns, 149-150
social behavior, 75, 281, 287
social environment, 31, 197, 209
social inclusion, 281
social issues, 6, 17, 100, 147-148,
153, 157, 164, 167, 175-176, 181,
186-187, 226, 228, 254, 265, 290-
292, 303-305
sociology, 5-6, 127, 155, 204, 246,
261, 290
sound, 31, 58, 169, 237-238, 313
space norms, 257-258
spatial behavior, 132, 145, 166,
201, 215, 225, 227, 231, 234, 243,
281, 303, 306, 317

Spatial boundaries, 142-143
spatial cognition, 145, 229, 231
spatial orientation, 218-219
spatial recognition, 282
squatter communities /
shantytowns, 140
stress, 3, 2, 25, 30-31, 36-37, 39,
67-69, 76-77, 103, 135, 162-163,
213, 216, 242-243, 256, 265, 296,
306, 308, 312-313, 315
suburbs, 9, 69, 72, 74, 77, 135, 150-
151, 168, 200, 208, 210, 305
subway station, 229, 232
survival skills, 184-185
survivor communities, 159
sustainability, 5, 17, 99-101, 104-
107, 158-159, 164, 203, 208, 251,
253, 265, 284, 288-289, 293-305,
308
symbolism, 173-174, 178, 183

Teaching, 13-14, 31, 39, 51, 133,
148, 153, 192-193, 198, 203, 206,
251-252, 264, 272-273, 305-306,
322
technology / computer
applications, 108, 126, 182-190,
198, 206, 280
teenagers, 138-139, 146
temporary settlement, 162-163
terrorism, 3, 6, 65-69, 72, 74-77,
158, 162, 165
theater, 150, 304
theory, 15, 31, 54, 64, 66, 98, 105,
111, 113, 120, 127, 141-143, 147,
154, 159, 162, 164-165, 167, 171-
172, 175, 185-186, 195, 197, 199,
204, 209, 213, 226, 228-230, 233,
246, 250, 261, 274, 295-296, 299,
301-302, 304, 306, 308
therapeutic gardens, 219
third place, 175
tourism, 141, 178-179, 294

Tradition, 3, 11, 30, 42, 55-57, 60,
64, 148, 156, 177-178
ransparency, 99, 122-123, 313-314,
328
transportation, 5, 8-9, 11-13,
18-19, 66, 75, 102, 122, 124-125,
145-146, 151, 166, 204, 232, 239,
263, 276, 288-290, 292, 295, 301,
307-308
tsunami, 160-162, 304

Universal design, 223, 229, 251,
278, 280-282, 285, 287
universities / colleges, 10-11, 30-
31, 199-201, 202, 203, 273, 286
urban, 6, 14, 15, 18, 41, 65, 79, 99,
107, 155, 167-171-179, 189
urban design, 13, 113, 122-125,
138-139, 148-149, 151, 154-155,
167, 171, 173, 189, 255, 288, 302-
303, 305
urban development, 19, 67, 106,
143, 148, 151, 157-158, 167, 177,
204, 267, 276, 289-292
urban planning, 18, 100, 105, 112,
150, 158, 195-196, 204, 255,
288-305
urban redevelopment /
revitalization, 168-169, 288,
302-303
urban sidewalks, 143
urban sociology, 155
urban sprawl, 146
urban / urbanism, 3, 12-13, 66, 69,
77, 135, 139, 143-145, 208, 265,
301-302
user needs analysis, 284, 286-287,
334

V

video documentary,
279
visual representations,
155
visual search, 218-219
visual transparency,
313-314
visually handicapped,
281-282

INDEX

Keyword

W

walkability, 122-123
walking, 16, 22, 26-27,
45, 122, 124, 140, 153,
176, 188, 211-212, 214,
218-219, 221, 223,
233, 259, 309
waterfront
revitalization, 189-
190
wayfinding, 4, 151, 187-
189, 218-219, 222-223,
229, 232-234, 274,
287
web-survey, 190
well-being, 129, 139,
209, 212-213, 221,
243-244, 249, 254,
256, 285-287, 306,
313
Wildfires, 161, 163-164
workplace, 5, 22, 31,
38, 172, 187, 198, 204,
211, 274, 286, 293,
306, 313
workstation, 24-25, 187
World Trade Center,
165

Z

Zoology, 4, 231-232