



17th Annual
Engineering
Project
Organization
Conference

Working Paper Proceedings

Evaluating the Role of Shelter Design on Social Capital Among Refugees

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Proceedings Editors

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EPOC 2019 | VAIL CO

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EVALUATING THE ROLE OF SHELTER DESIGN ON COMMUNITY RESILIENCY AMONG REFUGEES

KEYWORDS

Refugees, Social Capital, Shelter, Resilience

ABSTRACT

Social capital is an important indicator of wellbeing for refugees integrating into a host country because it helps them access resources needed for recovery. Despite the known importance of social capital for refugees fleeing conflicts, it is not fully understood how the design of a refugee camp affects social capital. With the global number of displaced people at an all-time high and the average lifespan of a refugee camp being around seventeen years, the effect shelter-design has on social capital needs to be understood. As such, this research asks “How do critical resources in shelter-design and demographic characteristics in a refugee camp predict social capital?” This research used surveying (N=68) in a Greek refugee camp to examine how critical resources in the camp environment affect bonding, bridging, and linking social capital. In this context, critical resources represent the most important resources in the camp environment as identified by the refugees. Linear regression models were built to explain how demographics and critical resources predict bonding and bridging social capital. Both bonding and bridging social capital were significantly predicted by critical resources and demographic factors such as gender, nationality, and marital status. This research suggests to practitioners and policy makers that improving the quality of critical resources in a camp environment can help with improving the strength of social bonds within in a camp. Furthermore, this research shows how the theory of social capital can be expanded to assist with the design of disaster shelters to help improve recovery in post-disaster situations.

INTRODUCTION

Since 2015, more than a million refugees have requested asylum in Europe. The majority of the refugees entered Europe by crossing the Aegean Sea into Greece (UNHCR, 2018). At the onset of the crisis, refugees spent around ten days in Greece before transiting further into Europe. To accommodate short-term stays, refugee camps and reception centres were built. However, in 2016, the nations around Greece closed their borders stranding over 60,000 refugees in Greece. With the large influx of refugees entering the country, the refugee camps have become overcrowded and resources have become strained (UNHCR, 2018). These conditions have posed risks for refugees’ integration and social capital as the camp environment can decrease social relations and community trust (Uzelac, Meester, Goransson, & van den Berg, 2018). This is because refugee camps often neglect the critical resource needs of refugees (Briant & Kennedy, 2004). When the needs of refugees are not met, they are unable to build social networks because they must divert their time and energy into finding critical resources to meet their needs (Uzelac et al., 2018). Furthermore, not

including refugees in the design of shelter can break social structures by violating cultural norms and living arrangements (Igreja, Bas, Schreuder, Win, & Kleijin, 1998). Understanding how to design around social capital thus becomes vital because when social capital is low in refugee communities, the refugees become more susceptible to vulnerability and exploitation. This vulnerability can greatly affect a refugee's ability to recover. Thus, understanding what and how shelter-design affects social capital is essential (Uzelac et al., 2018).

Despite the importance of social capital for refugees, social capital is inadequately considered by agencies who assess and design refugee shelters (Uzelac et al., 2018). This can partially be attributed to the relationship between resources and social capital being understudied (Martin 2005) This relationship is misunderstood because the needs of refugees are often not fully understood by those who design and manage shelters (Briant & Kennedy, 2004) Furthermore, the demographic characteristics of refugees, such as gender, age, nationality, living situation, and asylum status, affect how refugees interact with their environment. (Rasmussen & Annan, 2010) This gap can further be attributed to prevailing shelter-design guidelines, such as Sphere, not providing clear guidelines on how to consider and assess social capital. In addition, these guidelines do not consider how shelters and needs will vary in different humanitarian situations (Frison, Smith, & Blanchet, 2018; Sphere, 2011). Consequently, when the resource needs of refugees are not understood and integrated into shelter-design, the camp environment can cause significant stress and long-term psychological damage to a refugee (Chung & Kagawa-Singer, 1993; Rasmussen & Annan, 2010). This can lead to a breakdown of social capital and an increase in vulnerability. Due to this gap in shelter-design and management, this research hypothesizes that critical-resources and demographic characteristics can be used to predict social capital and improve current humanitarian standards.

To address this hypothesis, this research then asks, "How do critical resources in shelter-design and demographic characteristics in a refugee camp predict social capital?" In this research, shelter-design focuses on the availability and quality of critical resources to the refugees. Critical resources are resources identified by the refugees to be the most important resources in shelter-design. Identifying and examining critical resources is important because the resource-needs of refugees in the camp environment are often misunderstood or ignored because of the perceived temporal nature of refugee camps (Briant & Kennedy, 2004; Turner, 2016). However, this approach to shelter-design is no longer sustainable as the world has seen a rise in displacement and protracted conflicts (Miliband, 2017). Because of these global trends in increased displacement, the average lifespan of a refugee camp is now estimated to be around seventeen years (Moore, 2017). Due to these global trends, it is vital to identify and understand how these critical resources affect social capital.

LITERATURE REVIEW

SOCIAL CAPITAL IN PROTRACTED DISPLACEMENT

Social capital represents the ability for an individual to effectively use relationships within a community (Boateng, 2010). In protracted displacement, social capital has

been recognized as an indicator of refugee wellbeing that can help them recover and integrate in the host country. (Van Hear, 2014). For instance, social networks developed by refugees help them navigate host countries and access resources such as housing, employment, education, and healthcare needed for integration and recovery (Ager & Strang, 2008; Van Hear, 2014). In addition, social capital helps refugees act as proactive agents of change in their new host communities. Often, refugees are characterized as “persons-in-needs”, which can impose a social construct that’s fosters aid dependency and a lack of agency (Peisker & Tilbury, 2003) . Social capital gives refugees the resources to break from dependency to start controlling their own lives. Thus it is important to understand what fosters social capital in refugee communities. When refugees have low bonding, bridging, and linking social capital, they become more vulnerable and susceptible to poverty, exploitation, and crime (Uzelac et al., 2018).

This research examines three types of social capital: linking, bridging, and bonding (Aldrich, 2012). These three forms of social capital have been examined by previous studies in both refugees and disaster-recovery situations (Aldrich, 2012; Boateng, 2010; Uzelac et al., 2018). Bonding social capital is characterized by horizontal connections between individuals within a similar community, such as ethnic, identity, language, family, or neighborhood groups. Bridging social capital is characterized by horizontal links between communities of similar status that cross ethnic, religious, language, community proximity or other distance factors. Linking social capital is characterized by primarily vertical links with an explicit, formal, or otherwise established power dynamic (Aldrich, 2012).

Due to the importance of social capital, many studies have sought to understand how refugee communities use and are affected by social capital. When examining the different types of capitals available to refugees, a study of refugees in Lebanon found that social capital is often a refugee’s most important asset. While this study found that social capital is vital to refugees, it also found that social capital is not adequately assessed by agencies that manage and design shelters (Uzelac et al., 2018). A study of urban refugees in Canada used surveys to profile refugees’ social capital and found that social capital played a significant role in helping refugees integrate into their host communities. Social and familial networks developed by refugees helped them solve personal and financial problems that were not addressed by state aid. (Lamba & Krahn, 2003).

Other studies have examined how social capital varies with demographic characteristics. A study of female Liberian refugees in Ghana found that women generally had less social capital than men and this affected their ability to recover and access resources such as education, employment, and healthcare. (Boateng, 2010). This study suggests that social capital does not come to groups equally and that demographics must also be considered when examining a refugee’s social capital. This finding is reinforced by a study of how the demographics of a refugee affect how they interact with the camp environment. This is because different demographic groups have different levels of social capital due to how they interact with their

environment and the societal context in which they live (Boateng, 2010; Mehra, Kilduff, & Brass, 1998; Rasmussen & Annan, 2010)

POINT OF DEPARTURE

While previous studies have examined the importance of social capital in refugee communities, few studies have examined how the physical environment affects social capital (Miguel, Gertler, & Levine, 2006). In attempt to examine the relationship between social capital and the physical environment in a refugee camp, a study of refugees in Ethiopia examined how resource management in resource scarce situations affects community cooperation. The study found that effective resource management can help improve community cooperation and bonds (Martin, 2005). Other studies have studied how infrastructure improvements affect bonds and trust in a community. A study in Sri Lanka found that improving access to communal infrastructure such as water systems, improved trust and pro-social behaviors (Aoyagi, Sawada, & Shoji, 2014). These studies suggest that infrastructure and resources in the environment can be used to model social capital and that these relationships need to be explored more in-depth.

Building off these studies, this research departs from the theory of social capital to examine how social capital is affected by shelter-design in refugee camps. Prior studies that have examined social capital have struggled to model the relationship between the environment and social capital. This can partly be attributed to the many working definitions of social capital, the variations in the physical environment, and the variations in demographic characteristics (Araya et al., 2006). To address these constraints, this research defines social capital as three components: bridging, bonding, and linking. This definition of social capital has been used before when studying the social capital of refugees and displaced people in disaster situations (Aldrich, 2012; Boateng, 2010; Uzelac et al., 2018). Furthermore, this study relies on critical resources to account for variability in the environment. Finally, this study examines age, gender, asylum status, living situation, nationality, and relationship status to account for demographic characteristics. These characteristics have been used in prior refugee studies looking at how refugees interact with their environment (Rasmussen & Annan, 2010).

METHODS

SURVEY DEVELOPMENT AND DATA COLLECTION

To answer the research question, this research used a survey to examine the shelter-design of a refugee camps in Greece during the summer of 2018. Before distribution, the survey was reviewed and approved by IRB. The camp hosted around 580 refugees, of which 74% were from Syria. Surveys were distributed face-to-face and instructions were explained using an interpreter. Surveys were translated to Arabic, Kurdish, Farsi, and French and to accommodate the language groups in the camp. The surveys were explained to the refugees in their preferred language. Surveys were physically distributed and collected in the camp. Written-in responses, such as age and

nationality, on the survey were translated to English. All responses were inputted to a spreadsheet in Microsoft Excel and the dataset was analyzed using Stata.

First, the survey asked refugees to report their age, gender, nationality, relationship status, asylum status (e.g. granted asylum or seeking asylum), and their living situation (e.g. living spouse, friends, siblings, and/or children). Then the survey asked refugees to rank the importance and quality and availability of 54 resources in the camp and their personal accommodation. These questions were used to generate the independent variables for the linear regression analysis. These questions included 18 major categories of resources including structural, sleep, water, hygiene, electrical, air quality, food and nutrition, security, quality of life, medical, child services, recreation, education, community, and transportation. These resource categories were developed based on shelter assessment tools used by diverse agencies that examine the habitability of disaster housing. Specifically, this included questionnaires from the Center for Disease Control (CDC, 2008), Overseas Development Institute (Jones & Tanner, 2015), United Nations High Commissioner for Refugees (UNHCR, 2016), and the United States Department of Housing and Urban Development (HUD, 2018). All resource questions were answered using a Likert scale from 1 to 5. For the importance questions, “1” indicated a resource was of low importance whereas a “5” indicated a resource was of high importance. For the availability and quality questions, a “1” indicated the resource was of low quality and availability whereas a “5” indicated that a resource was of high availability and quality.

Next, the refugees were asked to complete questions measuring linking, bridging, and bonding social capital. Twelve questions were developed and they were grouped by capital type during analysis. These questions were developed based on existing studies of social capital in refugee camps (Boateng, 2010) These included ranking statements such as “I have close friends in the camp” and “I trust the camp community”. The social capital questions were answered Likert scale from 1 to 5 where “1” indicated “strongly disagree” and “5” indicated “strongly agree”

LINEAR REGRESSION ANALYSIS

The relationship between the critical resources and the forms of social capital was analyzed using linear regression analysis. Linear regression was used to select the best set of predictors for each form of social capital. Linear regression analysis has been used in conjunction with surveys in studies examining social capital and studies examining how refugee camps can affect mental wellbeing (Rasmussen & Annan, 2010; Takagi, Ikeda, & Kawachi, 2012). The dependent variables included the social capital measures while the independent variables were the demographics (age, gender, relationship status, asylum status, nationality, and family) and the identified critical resources, expressed as dummy binary variables. Missing data was deleted pairwise when creating the models.

RESULTS

SAMPLE CHARACTERISTICS

Table 1 summarizes the demographic information for the survey sample. The target population was adult refugees older than eighteen years old. Participants were selected by canvassing the refugee camp. The demographic information was collapsed into binary categories to be used as dummy variables in the linear regression analysis.

Table 1: Survey Sample Demographic Characteristics

Demographic	Description	Percentage of Sample
Age	Older than 30 = 1, otherwise =0	Age = 1, 54.5%
Gender	Male = 1, otherwise = 0	Gender =1, 76.0%
Relationship	Married = 1, otherwise = 0	Relationship = 1, 61.2%
Family	Living with friends or family = 1, otherwise = 0	Family = 1, 66.7%
Nationality	From Syria = 1, otherwise = 0	Nationality =1, 52.0%
Status	Asylum Seeker = 1, otherwise = 0	Status = 1, 76.5%

CRITICAL RESOURCES

The first stage in the data analysis was identifying the critical resources in the refugee camps. The critical resources were identified by ranking their means. Table 2 summarizes the findings and presents the most critical resources. Then, each critical resource was collapsed into a binary dummy variable where (1) represented good quality and availability (four or greater = 1) and (0) was otherwise.

Table 2: Critical Resources

Resource	Importance Rank	Importance Mean	Standard Deviation	Number of Observations
Kitchens	1	4.750	0.705	53
Air Conditioning	2	4.694	0.767	54
Air Heating	3	4.625	0.839	52
Kitchen Utensils	4	4.618	0.718	51
Toilets	5	4.610	0.922	50
Lighting	6	4.610	0.723	50
Showers and Baths	7	4.602	0.930	49
Wi-Fi Networks	8	4.593	0.957	54
Water Heating	9	4.554	0.867	56
Phone Network	10	4.510	1.055	52

DEPENDENT VARIABLES

The dependent variables in the linear regression analysis were bonding, bridging, and linking. The dependent variables were considered continuous and were calculated by

averaging the means for their respective questions. Table 3 summarizes the dependent variables.

Table 3: Dependent Variables

Variable	Description	Questions
Bridging	Measurement of connections between refugees and Greek Community	(1) I receive help from the host Greek community (2) I have close friends in the host Greek community (3) I interact with the Greek host community
Bonding	Measurement of connections between refugees	(1) I have close friends in the camp (2) I trust the camp community (3) I participate the camp community (4) I interact with groups in the camp
Linking	Measure of connections between refugees and government and NGO officials	(1) I trust the Greek government (2) I interact with local organizations and local government (3) I trust the NGOs working in the camp (4) I have legal rights in Greece (5) I have power to make decisions in the camp

BEST FIT LINEAR REGRESSION MODELS

Once the variables were created, linear regressions were run between the dependent and independent variables to select the best model. Table 5 shows all of the statistically significant models ($p < 0.05$). For bonding, the best predictors were Lighting ($p=0.001$), Kitchen Utensils ($p=0.031$), Nationality ($p = 0.018$), Relationship Status ($p=0.003$), and Gender ($p=0.010$). For Bridging, Lighting ($p=0.000$), Kitchen Utensils ($p=0.004$), Water Heating ($p=0.022$), Relationship Status ($p=0.026$), and Gender ($p=0.004$) were the best predictors. No significant predictors for Linking were found. The beta values, standard errors, and R-squared values are reported in table 5.

Table 5: Linear Regression Results

Variable	Description	(1) Bonding	(2) Bridging
Lighting	1 for Good quality and availability, 0 otherwise	1.39** (0.36)	1.64*** (0.37)
Kitchen Utensils	1 for Good quality and availability, 0 otherwise	-0.94* (0.40)	-1.39** (0.42)
Water Heating	1 for Good quality and availability, 0 otherwise		0.92* (0.37)
Nationality	1 if from Syria, 0 otherwise	-0.76* (0.29)	
Relationship Status	1 if married, 0 otherwise	1.21** (0.35)	0.85* (0.35)
Gender	1 if male, 0 otherwise	1.65** (0.57)	1.71** (0.52)
Constant		0.57 (0.68)	-0.68 (0.71)
Observations		24	25
R-squared		0.58	0.63

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

DISCUSSION

BONDING

The quality and availability of two critical resources (lighting and kitchen utensils) were found to be significant predictors of bonding social capital. This suggests that improvements in some critical resources can correlate with stronger community bonds. These findings are consistent with previous studies that have examined social capital in refugee camps. In refugee camps where immediate needs outweighed any long-term needs, social connections gradually declined (Uzelac et al., 2018). This is because when there is a scarcity of resources, refugees generally regard each other as competitors rather than supporters. Furthermore, the time it takes to collect critical resources is detracted from time they could use to be building relationships in the camp. As such, their ability and willingness to share information and work together declines because they need to spend time collecting resources. (Uzelac et al., 2018). This is detrimental to long-term recovery as social networks are key to long-term recovery and integration (Van Hear, 2014). However, it is important to consider that one of the resources (Lighting) was positively predicting and the other was a negative predictor (Kitchen Utensils). This suggests that not every critical resource in camp environment will improve bonding and that critical resources need to be examined on a case by case basis to determine their effect.

In addition to critical resources, bonding was significantly correlated with the Syrian nationality, the male gender, and a married relationship status. These findings

aligned with previous studies that have found that demographics affect how a refugee interacts and perceives their environment (Rasmussen & Annan, 2010). Rasmussen and Annan found that married men tended to experience more stress than other demographic groups in a refugee camp. This was because men often felt like they were unable to provide for their families in the camp environment. Because married men experience more stress, they may be relying more on their social networks to navigate resources in the camp environment. While gender and relationship status were positive predictors of bonding, nationality was a negative predictor. This finding is supported by distinctiveness theory, which states that majority groups form less cohesive groups (Mehra et al., 1998). Because Syrians were the majority group in the camp, less cohesion can be expected.

BRIDGING

Bridging was found to be negatively and positively correlated with the quality and availability of three critical resources (lighting, kitchen utensils, and water heating). This suggests that changes in critical resources correlates with changes in bonds with the Greek host community. One explanation for this is that increasing the quality and availability of resources in the camp environment allows refugees more time to build relationships outside of the camp environment. When the basic needs of refugees are met, they can invest more time into building bridging social capital and accessing resources for integration such as education, employment, and healthcare (Ager & Strang, 2008). These resources are generally accessed through bridging social capital more so than bonding social capital (Uzelac et al., 2018). However, the critical resource that was a negative predictor suggests that there are certain resources that might make refugees less likely to build bonds outside of their communities.

Similar to bonding, bridging was found to be significantly predicted by gender and relationship status. This suggests that married men not only build community bonds to help overcome stress but they also build bonds with the Greek community. Bridging social capital is critical for a refugee's recovery as it helps refugees access resources such as employment, healthcare, and education outside of the refugee camp environment (Uzelac et al., 2018). Therefore, married men would be expected to build social capital to try and find employment to support their families. Unemployment was a significant predictor of stress for married men (Rasmussen & Annan, 2010). Unlike bonding, nationality was not a significant predictor of bridging. This suggests that nationality does not affect building bonds outside with the Greek community.

LINKING

While bonding and bridging showed significant relationships with the resources and demographic parameters, linking did not. This could possibly be attributed to the segregated nature of refugee camps, which can cut off refugees from external communities (Turner, 2016). As the camp environment can cut-off refugees from nearby communities, internal camp improvements may not be the most appropriate way to improve external relationships with the government and other agencies. Future studies should examine the spatial nature of refugee camps to see how the physical

placement and connections of the camp can affect linking capital. Many of the refugee camps in Greece are built on old military installations (SMS, 2018), which are geographically isolated from Greek towns and cities. This spatial placement could be one reason the resources did not affect these forms of capital.

PRACTICAL CONTRIBUTION

In terms of practical contributions, this research provides guidelines to camp officials and designers on how shelter-design can be used to improve social capital among refugees. As noted earlier many agencies neglect social capital when considering the wellbeing of refugees and the design of shelters (Uzelac et al., 2018). This research addresses this gap by providing methods and methodology for conducting such an assessment. The methods used in this study show how critical resources can be identified and analyzed with social capital. Camp officials can replicate these methods to identify critical resources and improve their quality in the camp environment. Such an approach will help improve refugee social capital and their ability to recover and integrate. This contribution is of particular importance because the global number of displaced is at an all-time high of 68 million and is expected to keep growing as conflicts and natural disasters continue (UNHCR, 2018). With such a large displaced population, it is important to identify elements that affect recovery and integration. By identifying and operationalizing these elements, the recovery and integration of displaced people can be improved.

THEORETICAL CONTRIBUTION

For theoretical contribution, this research expands the theory of social capital by operationalizing bonding, bridging, and linking social capital in the shelter-design context. Prior studies have struggled to effectively model the relationship between social capital and the environment due to the many working definitions of social capital and the variation in the physical environment. (Araya et al., 2006). This study helps close this gap by showing that bonding, bridging, and linking social capital can be used as a working theory when examining how shelter-design. Furthermore, this study addresses variation in the environment by having the refugees identify which aspects of the environment were most important to them. By addressing both past limitations, this study shows that social capital can be expanded into humanitarian design standards, such as Sphere. This expansion is critical because current humanitarian standards often do not accurately assess the resource needs and the social capital of refugees (Frison et al., 2018; Uzelac et al., 2018). By expanding social capital and the concept of critical resources into shelter-design, shelters can be better built to foster resiliency.

LIMITATIONS

There are few limitations to consider when interpreting these results. First, the research team had limited access to the surveyed refugee camps. Entrance to refugee camps in Greece is restricted by the Greek Government. This access constraint

resulted in a small sample size for this study (N = 68). While the sample size was small for this study, this one of the few studies to examine the connection between social capital and shelter-design. Because of the exploratory nature of this research, the small sample size and low r-squared values are justified for building an exploratory model (Goh & Binte Sa'adon, 2015). Furthermore, due to the uncertainty in human cognition and behavior, a low R-squared expected (Newman & Newman, 2000). Future studies should build off this research to build a more robust model explaining the relationships between social capital and critical resources. Due to these limitations, these models should not be considered an absolute model of social capital in a refugee camp environment. Rather, these models indicate that there is a relationship between critical resources and social capital that needs to be investigated further.

RELATION TO GRAND CHALLENGES

This research responds to grand challenges four (system integration) and grand challenge five (lifecycle value and governance). It responds to GC4 by integrating social capital into the design of shelters for refugees. This research highlights the importance of a systems approach when considering the planning and design and shelters by showing the relationship between physical and social systems. This research also responds to GC5 by promoting resiliency in displaced communities. This research highlights the importance of considering different relationships when responding to refugee crises by showing the effect that they have on recovery and social capital. By integrating social capital into shelter design, refugees can better recover in the camp environment and focus on their long-term integration.

CONCLUSION

This research responds to critical society issues and efforts to effectively respond to the refugee crises by providing knowledge about social and physical interdependencies in the planning and design of shelter for displaced people. This research helps model the connection between the built environment and social capital, which has been an elusive connection to make in the past (Araya et al., 2006). Moreover, this research underlies the importance of the critical resources for resiliency of vulnerable populations and reinforces the idea that the design and planning (e.g. sanitation, shelter, cultural space) of shelter should align with displaced people's preferences and needs to facilitate adaption and integration.

This work addresses critical national needs, such as better response to natural and man-made disasters by identifying the qualities of emergency infrastructure (e.g. shelter) that create greater capital to address the needs of displaced communities (Gabiam, 2016). By studying the design of shelters in Europe, this research will help with developing guidelines that can be used for shelter design in the US. The number of displaced people coming into the US reached 50,000 in 2017 and the number of internally displaced persons is expected to only increase among US coastal communities responding to climate hazards (e.g. coastal erosion, chronic flooding) (UNHCR, 2018). Such data could prove critical to agencies such as the Federal

Emergency Management Agency (FEMA) as they provide shelter to displaced people. A human-centered shelter could help promote resiliency while mitigating harmful effects on wellbeing. In addition, this research provides a framework that can be used to help with assessing the capacities of displaced people in future situations.

Furthermore, this research expands the theory of bridging, linking, and bonding social capital by expanding it to shelter design. Prior studies on social capital have investigated how social capital affects a refugee's integration and wellbeing (Uzelac et al., 2018). However, there have not been many studies investigating how shelter design in a refugee camp affects a refugee's social capital. By investigating the relationship between social capital and shelter design this research expands the theory by relating it to shelter design. This work shows how the theory of social capital can be used in shelter design to improve resiliency.

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