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# International Journal of Multimedia Art, Design and Education

**Prof. Siu-Tsen Shen**

Editor-in-Chief

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A warm welcome to the second edition of the International Journal of Multimedia Art, Design and Education (MADE), an open-access resource dedicated to publishing high quality, peer-reviewed research papers in all areas of design research.

Much has changed in the world over the last 18 months, the COVID-19 crisis has caused enormous damage to the world economy, and resulted in 168 million cases and over 3.5 million deaths to date.<sup>1</sup> Most economists estimate that the impact of the pandemic has caused a reduction in the global economy of upwards of 5% (US\$4 tr).<sup>2</sup>

The economic downturn has led to recession in many countries, and loss of countless numbers of jobs. The way to growth and an economic bounce back stems from dealing with the initial medical emergency and a focus on designing and developing a vaccine.

Simply closing borders and isolating a nation can work in the short term to prevent infections, but is not a long-term solution to the problem. Once again we realise that prevention is far better, cheaper and easier than the cure. The field of design, whether medical (vaccines research), medical design (respirators), nursing breathing apparatus (PPE) or therapeutic healing to fix the mental health toll of the COVID-19 pandemic, these are all valuable contributions to society.

Our Editorial Board consists of leading design researchers and practitioners from all over the world, all of whom have proved willing to contribute their valuable time to

the development of this new journal. To reach the widest possible audience, the journal will be published both online and in print. The online version will be open access, freely available for anyone, anywhere to download, read, distribute, and use, with proper attribution of authorship, for any non-commercial purpose. A printed version of the journal will also be available at cost.

The journal aims to provide an international forum for exchange of ideas and findings from researchers across different cultures, by encouraging research on the impact of cultural factors on design theory and practice. The journal also seeks to promote the transfer of knowledge between professionals in academia and industry. To help make our vision a reality, we invite you to submit your best work to the MADE Journal and to encourage your colleagues to do the same.

In these turbulent times, we all have a responsibility to use design tools to boost economic growth and provide opportunities to the younger generation. These are our future leaders, and together we can overcome the current challenges of Covid-19, recession and geo-political tensions in the world.

## **Acknowledgements**

The second issue of MADE was only possible due to the hard work of the three contributors. Each of the contributors went through an extensive revision/review process, which resulted in works of excellent quality. The reviewers in the various disciplines spent countless hours on top of their already busy schedules to

ensure the works included are of the highest quality. The MADE executive committee not only had the goal of creating this journal, but also served a large role in determining the initial format and general guidelines for the journal. They had online meetings to discuss deadlines, submission, and their careful consideration helped the editorial board avoid a number of pitfalls we could have encountered with this issue. They were also charged with the difficult task of selecting the cover design from an impressive set of submissions. I also need to acknowledge the work of Assisting managing editor, Sin- Yi Guan, who spent hours discussing policies, formatting, and any other number of other details about the journal with me.

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Prof. Siu-Tsen Shen

June 2021

## Table of Contents

Art Therapy in Taiwan

*Mei-Ti Chang*.....5-36

Form a crafting: Teaching Strategies of Basic Design from the Perspective of the Tacit Knowledge Theory

*Jia-Xiang Chai & Kuo-Kuang Fan*.....37-50

Growing Green, Benign by Design: Ecological aspects of Industrial Design (Part 1 of 3)

*Anton J. Velthuisen*.....51-64

# Art Therapy in Taiwan

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People in different cultures have different views of the self, others, and of the relationships between the two. The worldview held by a client can influence the very nature of the therapy process. The purpose of this paper is to investigate how Taiwanese art therapists work with their clients. It also takes into account their training background, experience and difficulties, which they may have encountered. Initially, the literature regarding the general components of culture was reviewed. The differences between Western and Eastern societies, as well as related issues about applying psychotherapy in Asia were then discussed. A qualitative methodology to conduct interviews with five Taiwanese art therapists was undertaken and the characteristics of Taiwanese culture were also included. An analysis of feedback from interviews was discussed together with relevant topics. The findings demonstrate how the social and political climate has affected the development of Taiwanese art therapy and the measures taken by practitioners to adjust to Taiwanese culture. The paper also draws attention to elements of folk therapies and folk art, which need to be considered to form an indigenous Taiwanese art therapy.

**Keywords** – Taiwanese art therapy, cultural differences, social and political climate, folk therapy, folk art.

**Relevance to Design Practice** – This study is valuable for art therapy education in Taiwan. Qualitative methods were described and which can be used by other practitioners. The evaluation results are valuable for defining cultural differences in the field of art therapy.

## Culture Difference

### Introduction

Mental health is mostly associated with people's perceptions of the world and one's worldview is deeply characterized by his culture. In this chapter, the review of general cultural issues will be firstly introduced, and it will follow by illustrating the difference between Eastern and Western culture. At the end, the characters of Taiwanese culture will be presented.

### General Cultural Issues

Hofstede (1991), a social psychologist from the Netherlands, sees culture as a collective phenomenon; he defines culture as the collective

programming of the mind, which distinguishes the members of one group or category of people from another. He goes on to say that culture is learned from one's social environment; hence how one expresses his feelings is actually modified by his culture. Lewis (1997) states before formal learning ever taking place, culture has been received at the beginning of birth and one's worldview starts shaping on a body unconscious level. Dosamantes (1997) addresses that culture actually functions as a screen, filtering of what we pay attention to and what we ignore. Continually, the author expresses that through a child's preverbal social experience, the child establishes sense of self and gains his cultural identity. Dosamantes states:

“Members of cultures with contrasting

underlying values, beliefs, myths, modes of expressions and different ways of structuring social relationships generate different kinds of body boundaries and body-images and ultimately different senses of themselves (p132).”

As discussed in many art therapy or psychotherapy literatures, cultural issues, which associated with the practice of the service, were identified by wide-ranging case studies or various therapeutic approaches (Atkinson & Gim 1989; Akutsu & Lin et al, 1990; Case, 1990 & 1998; Lee, 2002). Since cultural issues are significantly influential to art therapy practice, in order to apply cultural elements appropriately and sensitively into the mental health service, it is important to understand how the cultural climate affects our professional approach.

Lewis (1997) states that most of the field of psychotherapy and mental health counselling are based on a Western European and North American worldview. But their clients’ perspectives of the world might be hold by a very different belief system. For that reason, it is not surprisingly that it is difficult for therapists to perceive their clients’ psychological assumptions. Lewis concludes:

“Not only is each individual a socio-cultural-political human being, but that the process of therapy is also a socio-cultural-political phenomenon. (1997, p.124)”

From this point of view, the individual’s cultural values, their identity about therapy and view of art and its expression are all very crucial to the therapeutic process. Lewis suggests that not only is the therapists’ culturally sensitive required, but the use of the arts as a facilitator for growth and healing is transcultural and profound. Similarly, Dosamantes (1997) emphasises that a therapist requires ‘multicultural flexibility’, the capability to shift from one cultural lifestyle to another, when

working with clients with different cultural identities.

Given that mental health is associated with how people behave in the society and how their behaviors may differ across cultures. It is necessary for therapists to be aware of some basic conceptions in different cultures. In the following sections, I will discuss the variation in cultural differences in Western and Eastern countries.

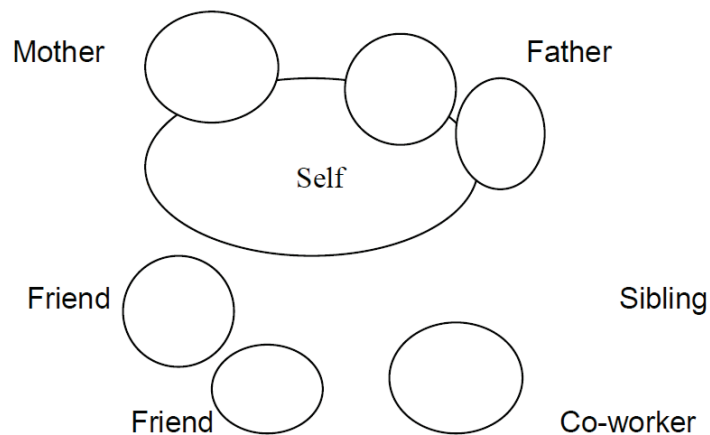
## Eastern and Western Cultures

Broadly speaking, growing cross-cultural research and evidence suggest that cultures could be clarified in different groups according to its characteristics. In a parallel fashion, many Eastern countries are seen to emphasise the value of Collectivism, whereas the importance of Individualism is appreciated by most Western cultures (Hofstede, 1991). The “We” and “I” mentioned by Case (1990) are to refer to the cultural differences between East and West. In her article, a description about Chinese landscape paintings and Western portraits could provide a vivid example:

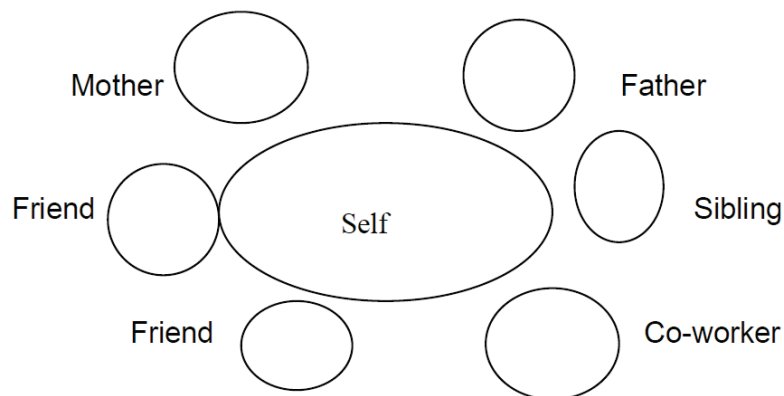
“A traditional Chinese painting of a mountainous landscape with a tiny figure lost in the surrounding, an oceanic sense of the relationship to the land and nature. Compare this to the Western portrait, where an individual is seated in their estate, in ownership, separateness and individuality are strong (Case, 1990, p.3).”

According to Markus and Kitayama (1991), in the East, most people have the “Interdependent Self”; one is motivated to fit into others and the society, but, in the West, the “Independent Self” is developing because there is a faith in discovering and expressing one’s unique attributes. The conceptual representation of the self is illustrated as below (p.226):





**Figure 1 (a) - Interdependent view of self.**



**Figure 1 (b) - Independent view of self.**

Maskus and Kitayama (1991) also state that, in an interdependent culture, there are five tasks for people to achieve. These are: belonging and fitting in, occupying one's proper place, engaging in an appropriate action, promoting others' goals, and being indirect; "read other's mind". Meanwhile, the five tasks for people with an independent self-construal are: being unique, expressing self, realizing internal attributes, promoting own goals and being direct; "say what's on your mind".

Another research by a Taiwanese counsellor indicates that "Harmony-Competition", "Authority-Equality", Tradition-Innovation", and "Natural Force- Human Power" could show the differences between Chinese and American culture<sup>1</sup>(Chen, 1988). Furthermore, the author explains, the aim of analyzing Eastern and Western cultures is not to divide culture into different categories. The author emphasizes that

in a Collectivism society, some people hold Individualism thoughts, however, in an Individualism society some people show more Collectivism characters. In addition, one might also find both characters in the same person. In general, people are influenced by different cultures and its values.

## **Background information about Taiwan<sup>2</sup>**

In the following sections, the general information about Taiwan will be firstly mentioned and it is because Taiwanese culture and religion is deeply related, therefore they will be illustrated in the second part of this section.

### **Taiwan in Brief**

Taiwan is formally known as the Republic of China (ROC). Founded in 1912, the ROC is the first constitutional republic in Asia. As a link in

a chain of East Asian islands, Taiwan is located in the Southwest Pacific and separated from China by the Taiwan Strait. Due to the reason of its special geographical position, Taiwan is also a natural conduit to the rest of Asia from the Pacific and it is home for abundance marine culture. Spanning 386 km north to south, and 143 km east to west, the island is shaped like a

potato. The central range of high mountains ranges from the northeast part to the southern tip of Taiwan and constitutes about 31 percent of the land area. Taiwan is composed of hills, plateaus, seaside valleys and basins. This small island contains frigid zone, temperate, subtropical and tropical zone.



**Figure 2 – Map of Taiwan.**

### **General Information of Taiwan**

Capital: Taipei

Area: 36,000 km<sup>2</sup>

Inhabitation: 22.5 million

Official language: Mandarin

Main religions: Buddhism, Taoism, Confucianism and Christianity.

### **Taiwanese Culture and Religion**

Traditional Taiwanese culture is very similar to that of China. However, not only Chinese culture, but also the Aborigines culture and Colonial culture all mix together like a big melting pot, which produces very rich cultural and social colour. For the past few decades, Taiwan has already become very westernized economically and politically. However, traditional values and religions still deeply influence people's daily life.

The freedom of religion is a right for all people in Taiwan. For the most part, the traditional religions practiced in Taiwan are Taoism, and Buddhism and folk religions. Although each religion may appear to postulate an independent doctrine, some cannot be strictly differentiated. The main two characters in Taiwanese religions are polytheistic and syncretic, most of the island's traditional places of worships combine all three traditions. Like other polytheistic beliefs around the world, the

majority Taiwanese worship a broad pantheon of gods and goddesses, and each deity has his/her own 'specialty'. Furthermore, different deities are often worshiped in the same temple, forming a very unique feature of religion in Taiwan. Confucian is another important part of religious thinking in Taiwan, his advocate of the practice of rituals, the worships of ancestors as well as the Confucian values are still very much being emphasised in Taiwanese society. In the Confucian view, it is important to control one's selfish desires and cherish five basic virtues, which are: human-heartedness, righteousness, propriety, wisdom, and trustworthiness (Dien, 1999, p375). To achieve harmony and good social order, people are educated consistently paying attention to find the balance in their relationships and to become part of various "interpersonal relationships". As Dien states: "children are affectionately accepted for their individuality as long as they learn to get along harmoniously with one another" (1999, p375).

In the same way, Lu & Gilmour (2001) mention the relationship harmony is a concept borrowed from Confucian philosophy and it is the most significant force, which shapes the mentality of Chinese/Taiwanese people. In other words, the 'Self' develops in a process of interrelation with persons, which is different from Western psychological theories (Markus & Kitayama, 1991, p.227)

To sum up, therapists need to be aware not to count on Western psychology theories completely when working with Taiwanese clients. Misunderstanding would easily happen if therapists underestimated cultural values, which are held behind their clients.

## Psychotherapy in Asia

For many Easterners who have not embraced Western monotheism, the views are quite different. Generally speaking, in Asia, most people viewed themselves as part of the nature but not as the centre of the universe. As a result, the western psychotherapy aimed at helping the individual to discover ways of solving their own problem is sometimes alien to them. There have been many established researches in psychotherapy in Asia. This chapter documents how these mental health practitioners relate their clinical work in Eastern countries. By reviewing these literatures, it is my hope to gain a better understanding in this field of work.

Since the external behaviors are linked to one's internal thought when applying psychotherapy to a Eastern country, with the purpose of carrying on the therapeutic work, therapists must implicit the importance of understanding the belief, which associates with the culture. As Bradt (1997) expressed that the different cultural values can not only lead to misdiagnosis but also have a massive impact on the whole therapeutic process. An example was then given to discrepancy between Western values and values of Asia American and Native American. It was believed that the worldview held by these ethnic minority groups valued the group above the individual. They used a more fatalistic approach to explain the experience of psychological problems than the White majority.

On this ground, Lee (2002) wrote about

Chinese indigenous psychotherapies in Singapore. In overview, Lee emphasized that mind-body connection and human-nature connection were the two aspects in Chinese treatment beliefs, which were different from Western psychotherapy philosophy, that is, the value of mind-body dualism, human-nature dichotomy, and individualism. As a result, their conceptualization of treatment was perceived very differently.

The Kasai (2003) article presented that in Japan, less material is spoken, whereas more expression occurs in non-verbal communication. He suggested that most of the Japanese and other Eastern Asian pay significant attention to the relationships among object and persons and the environment when defining themselves and their priorities. For Japanese people, the meaning of self is more variable and action-oriented, and the individual needs to show adaptability and flexibility as one acts in accordance with norms, roles, and expectations in different situations. Therefore, he said sand play therapy, a non-verbal and quite therapy, especially helpful for facilitating meaning making in Japanese culture. This article concluded that although the primary principles of sand play therapy are similar across cultural contexts, the Japanese values and perspectives on the self and mental health are consistent with the practice of sand play therapy. In the field of drama therapy, Landy (1997) wrote about his journey to Taiwan as a practitioner and theorist of drama therapy. He described the ambiguities between tradition and Post-modern, Chinese culture and Western culture. In Taiwan, he found himself as a stranger in a strange land, he said, "my education was truly one in yin and yang. Like a good meal in Taiwan the elements were harmoniously balanced "(p.162). To combine his western perspective of drama therapy and Chinese culture, Landy chose 濟公 Ji-Gong, a famous Taoist monk in Chinese culture, who represents many paradox features, as the main character to be performed on stage for Taiwanese audience. Working with the Taiwanese, Landy put:

In Taiwan, among those raised with the cultural reality of a philosophical Taoism, the rejection of the Self was a non-issue (Landy,

1997, p172).

According to Ijuin (2001), several drawing techniques are being adopted as an introduction to art therapy. In addition, Japanese art therapists invented their own drawing tests such as the Landscape Montage Technique, and the Elicitor Technique. These various methods are commonly used in art therapy however Ijuin pointed out that in Europe and the United States drawing tests are usually considered to be a technique of representation in line with restrictions imposed by therapists and the general opinion appears to be that they have nothing to do with free association, transference or therapy. On the contrast, in Japan, drawing methods as referred to above do not strive overtly to impose meaning or compel acceptance of a particular meaning and they are perhaps distinctively Japanese methods and theoretical applications of art therapy. To explain further, Ijuin suggested, pictures for such inducement may be presented but there is no attempt to impose meaning and free drawings, spontaneous drawing and pictures with prescribed subject are inserted. Thus art therapy in Japan are situated somewhere between spontaneous pictures and drawing tests as practiced in Europe and the United States. Ijuin believed that this might be caused by the differences in mentality between Europeans and Japanese. He suggested that Japanese art therapists tend to leave a diversity of meanings on the finished artwork, and wait until a degree of fertility arises of the clients.

On the central concerns of the cultural difference, Lewis (1997) pointed out that art, dance, music, and drama have been essential in many cultures as vehicles of healing and communication. Therapists could use them to link the gap of giving way stereotypes on both sides of the therapy relationships and of a working alliance on behalf of the client (p125). Alongside that, Bradt (1997) described that ethical issues often encountered in multicultural therapy therefore “becoming a cultural skilled therapist is an ongoing process that never ends” (p141). Bradt emphasized, the cultural knowledge was not the only condition for effective multicultural therapy; the therapists’ self-awareness about their own attitudes,

feelings and stereotypical views about their clients was also essential to facilitate the therapeutic process.

## **Mental Health Care in Taiwan**

### **Introduction**

Mental health care in Taiwan is a complex system. In general, it includes the Western approach, Chinese medicine, and folk therapies. In this chapter, I will begin with introducing the brief history of psychiatry in Taiwan; psychotherapy and counselling are also mentioned in the first section. Next, Chinese medicine, and other forms of therapy in Taiwan will be illustrated in the second section. Finally, the National Insurance Programme and its effect on mental health care will be provided at the end.

### **Western approach: psychiatry, psychology, psychotherapy and counselling**

A book written by Lin (1994), a Taiwanese pioneer psychiatrist provides a brief historical sketch of development psychiatry in Taiwan. According to Lin, in 1921 when Taiwan was still a Japanese colony, some psychiatrists from Japan founded the first custodial care of the insane in Taipei. A year later, the Japanese admiralty house set up the “opium rehabilitation institution” to accommodate opium addicted patients and this was followed by the first public-funded psychiatric hospital built up in Taipei, 1934. After that, the north, middle and south part of Taiwan started to establish psychiatric hospitals where the mentally ill was housed.

Lin goes on to describe that prior to anti-psychotic drugs were introduced, the lunatic was seen as linked to physical causation, therefore, was treated by physical means or biological methods. After World War II, National Taiwan University Hospital set up the first psychiatric department. Since then, the university hospital became the leading organization in the field of psychiatry, promoting psychiatric trainings and research in Taiwan. During that period of time, the majority of psychiatrists were Japanese-trained. From the 1950s, the National Taiwan

University Hospital adopted the American medical model, developing a trend towards social psychiatry and bio-psychiatry. Since 1955 and the following thirteen years, “China 20”, a project directed by WHO, supported people in their training as mental health professionals in Europe and USA. This illustrated the results of higher mental health care education, more qualified practitioners and higher steady development of the service. In 1961, the Chinese Psychiatry Association was founded in Taipei and became the member of International Psychiatry Association.

As recently as 1980, medical colleges and universities were set up in main cities to meet the increasing demands from the people for the better quality of health care. Based on these university/ college hospitals, clinical placements and theoretic trainings in psychiatry were strengthened. Within the next twenty years, members of the association had been increased to approximately 500-600 people (Chen, 1994).

In Taiwan, the mental health care in hospitals is medical model orientated; psychology, psychotherapy and counselling came to this island in recent years. Currently, counselling psychologists work in counselling centres in colleges/universities, charities, social counselling centres, or practice privately, whereas clinical psychologists carry out their services in psychiatric hospitals, community mental health centres and clinics. However, they and did not grow significantly in Taiwan.

In more recent years, some psychiatrists started to show their interests in developing the use of art in mental health. With the belief of art making process could provide a channel for psychotics to express themselves and improve their self-esteem, some medical centres in liaison with the Taiwanese psychiatry Association are continuing to hold exhibitions of art which made by the mental ill. These Taiwanese psychiatrists were reportedly ready to espouse a fashion which aims at promoting art therapy and help their patients to be understood and accepted by the society (review article from China Times, 3 Nov, 2004).

## Folk Therapies

In the process of the Westernization and Globalization, when coming to the face of emotional problems, it is still common for people in Taiwan to seek support from tradition values in order to alleviate their pressure and ensure their mental health. In modern society, treatments for mental illness are still rooted in traditional concepts. This gives a reason why the practice of folk therapies are continuing and popular in Taiwan (Lee, P.L., 1996). In the following sections, three Chinese folk therapies: Chinese Medicine, 風水 Feng-Shui (Chinese geomancy), and 算命 Suan- Ming (Chinese Shamanism) will be shortly presented.

### 中醫 Chinese Medicine

Chinese medicine is a complete system of healing that develops in China about 3,000 years ago. Its central concept is that laws of nature could be used to understand the inner working of body and mind. Practitioners of Chinese medicine believe that people's health is like the universe at large; illness is seen as a disturbance in the balance of Yin and Yang<sup>3</sup> or the Five Elements<sup>4</sup> caused by emotions, heat or cold, or other influences. In the field of Chinese medicine, the body and mind, human and nature, are interrelated. Therefore, therapy depends on accurate diagnosis of the source of imbalance. Practitioners use acupuncture, herbs, and qigong<sup>5</sup> for treating psychological problems (Ebrey, 1993, Lee, B. O., 2002).

### 風水 Feng-Shui

Feng-Shui, translated from the Chinese, means Wind Water, has been a long tradition for the Chinese and it is still very popular among Taiwanese people. Feng-Shui is considered as a system of philosophy and has been used as a method of connecting people with the surroundings. As the deepest level of understanding, Feng-Shui is the interplay between the seen (our environment) and the unseen (energy and intention). Feng-Shui masters believe that emotional problems are caused by unhealthy environments. The location of the house, the arrangements of the furniture, even the position of the ancestors' tomb all have effects on people fate and health (Chang, 2004).

Therefore, to help people with their emotional problems, Feng-Shui masters would restructure their clients' physical environments so that the human and the cosmological forces will keep in harmony (Lee, B.O., 2002).

### 算命 Suan- Ming

Suan-Ming, a form of shamanism is a very well accepted activity among the Taiwanese, particularly for those who believe in Buddhism, Taoism and other folk religions. As like many Chinese people, Taiwanese believe in destiny. Suan-Ming masters could foresee one's fate by palm reading, face reading and other different ways of approaches and they also give suggestions in order to change one's fortune if there is a need. It is still very common for people to consult the masters about issues such as picking up a baby's name, marriage, job changing, house choosing, and other important events. Suan-Ming masters are taking roles as priest, astrologer and counsellor. In many cases, the therapy is often related to Taiwanese folk religions. To overcome emotional problems, people might be asked to perform some religious rituals. Such as 拜拜 Baibai (worships of deities), the most common way to be performed. One needs to notice that Feng-Shui and Suan-Ming are not only seen as folk therapies, they are also part of the Taiwanese life, affecting different perspectives of people's thinking and living.

According to a research by Yang & Hsieh et al (1999) about health-seeking behaviors in Taiwan, findings showed that over 40% of patients and their relatives believed schizophrenia was caused by supernatural power. These patients' family tends to seek advices from shaman because the role of the shaman is seen in a position between human and god; for this reason, they feel less threatened. Also people who believe in supernatural causes feel less stigmatized than those who don't. Therefore, shaman and other forms of folk therapy play special roles in mental health care in Taiwan (Lai, 2000; Wen et al, 1992).

### **The Influence of the National Insurance System (NIS)**

In 1995, National Insurance System Programme

was prompted by the Taiwanese government, which aimed to cover the health care spending cost for Taiwanese people. Until the end of 2003, the universal enrollment programme had covered the population up to 22 million (98.67%). Only 1.33% of the population were left uninsured. In Taiwan, the NIS includes almost all of the mentally ill patients. Mental health care encompasses: psychiatric ambulatory care or admission, psychiatric community rehabilitation, long-term care and subsidies of daily living expense. However, such care heavily burdens governmental finances, psychiatric department are commonly facing the pressure on claiming budget from the Bureau of National Health Insurance (Yeh, 2003).

## **Art Therapy in Taiwan**

### **The Taiwan Art Therapy Association<sup>6</sup>**

The Taiwan Art Therapy Association (TATA)<sup>7</sup>, founded in Taipei in June 2004, is a national association that represents a membership of 127 professionals and students. Dr Luis, the founder, is also the first chairman. The TATA is the 36th art therapy association in the world. It was established by a group of Taiwanese art therapists who met monthly as a peer support group. With the increasing number of the group members, they decided to form an association, to improve interaction between large numbers of members and to promote art therapy to the general public. This association not only opens to art therapists but also welcome people who are interested in this profession. In 2004, the TATA announces the following agendas as its future goals (from the TATA newsletter, 2004):

1. To help members who get a certification in art therapy or art therapy associated courses obtain the psychologist's exam qualifications.
2. To set up standards in art therapy training courses.
3. To establish an art therapy supervision system.
4. To conduct regular conferences and workshops around the country.
5. To support other bodies which need

direct art therapy services.

It is because Chinese art therapy textbooks are still very limited in Taiwan (less than 1.5 books per year are printed), the TATA also encourages its members to translate art therapy books from overseas or publish books concerning indigenous Taiwanese art therapy experience.

### **Memberships**

Based on the individual's training background, memberships are divided into: Professional Members, Regular Members and Student Members (See Appendix A). According to the TATA memberships' criteria, a background in artistic training and experience is not essential; instead, a psychology training experience is required. Up to the present, there are 19 professional members, 74 regular members, and 29 student members, making the number of the memberships over a hundred.

### **Art therapy in Institutions**

Art therapy has created 10 places, which deliver direct art therapy service. Among them, there are six hospitals, three charities, and one government organization (see Appendix B). On top of that, there are eight out of ten institutions located in Taipei. These services include art therapy with children with learning disability; adolescents with emotional disturbs; victims of domestic violent or sexual abused, and people with terminal ill.

### **Art Therapy Course in Taipei Municipal Teachers College**

Some colleges, especially teacher's colleges, start to include art therapy as an introductory course in their programmes. Mainly, these programmes are set up in the department of education, psychology, counselling, and art. By the time this research is conducted, there is no formal art therapy course in Taiwan. However, within this environment, the MA in Art Therapy at Taipei Municipal Teachers College is going to open its door in 2005 academic year. Students need to take an entrance exam before enrolling on this programme. Subjects of the examination include: Chinese, English, Psychology and Artwork making. Recommended textbooks for

taking the examination are: developing psychology, personality psychology, abnormal psychology as well as theories and skills in counselling. As for the art media, students could choose pencil, coal pencil, Chinese ink, chalk and water paint. In this, students are asked to finish an artwork within three hours. This exam is taking place on April 2005 with only ten people will be recruited.

## **Methodology**

### **Selection of Interviewees**

I felt that taking opportunities to carry out semi-structure interviews would be the most direct route for understanding specific issues which relating to the current situation of practicing art therapy in Taiwan. From the TATA, I subsequently mailed the art therapists listed under the professional members of staff. The resulting selection of interviewees was therefore chosen because of their relevant experience and the availability to attend the interviews within the period of time I visited Taiwan. Five people expressed their will to take part in my research. Consequently, in January 2005, I met them for the interviews in Taipei. Subsequent contact was eventually made by telephone to confirm arrangements and ensure their consents of using tape recording during the interview process.

### **Pilot Interview**

The pilot interview is invaluable for testing the questions and practicing the conversation. Due to the fact that all of my interviewees are Mandarin speakers; I asked a Taiwanese MA student to role-play the procedure three days before the first interview. This pilot interview gives me an opportunity of experiencing, to what extend, our perceptions are affected by the language we use? It is because my interview schedule is written in English, and each question is composed of a short sentence, therefore, I assumed, an instant translation of the content was a 'piece of cake'. However, during the conversation, I found myself could not integrate the sentences coherently. So many times, I stuck in the process. This finding reveals the truth that language barriers not only happen in my own experience as an oversea student in UK but also

occur upon I came back to Taiwan, trying to translate English into Chinese. As a result, another interview schedule was produced in Chinese in which I also adjusted the term and the tone of sentences to in order to fit into Chinese grammars. If merely applying the interview schedule, adjustments need to be made, then, to a larger extent, how art therapy in Taiwan could be contained? The pilot interview reminds me the difference could be expected.

### **Procedure**

The interview schedule was translated into Chinese and sent to my interviewees before the meetings were held. All of the Interviews were arranged in Taipei city where the art therapists currently practice. Due to different time schedules, interviews A and B&B' had to be conducted outside the organization; therefore, the events were held in café shops. Setting C was situated in the art therapist's workshop in a big building and Setting D was located in a high school where the therapist works as an art teacher. All the interviews were organized during the first two weeks in January 2005. Each session lasts at least 45 minutes.

### **Data Gathering**

Fourteen open-ended questions were made to explore relevant issues (Appendix C). This generates the central research of the study, which is to investigate the potential influence and role of art therapy in Taiwan.

The first four interview questions aim to find out who they are. This includes their professional background and training

experience. The next four questions are devised to focus upon the range of setting in which they work. These questions intend to discover information about current situation of practicing art therapy in Taiwan. The purpose of questions nine and ten are to disclose whether they have encountered difficulties or difference in their field of work under Taiwanese cultural climate in order to give a general concept about the situation of practicing art therapy in Taiwan and its difference from that in the western countries. The last four questions are to establish the context of the role art therapy play in Taiwan and their visions of the development of this profession.

## **Findings and Reflections**

### **Introduction**

From the transcriptions of the interviews, there was a very interesting mix of response relating to themes and issues, which come up in art therapy. This research, taking the experience of five Taiwanese art therapists, aims at elucidating of complexity and the dynamics of how cultural realities are constructed and related to their practice in Taiwan. The following discussion covers the similarity and differences among the respondents, the backgrounds of my interviewees, the organizations, the influence of both clinical and cultural elements whether they are found between or within the Taiwanese art therapists.

### **Professional Background & Art Therapy Settings**



**Table 1 – Taiwanese art therapists’ professional background and clinical art therapy settings.**

Interviewee	Length of practice	Professional background	Clinical setting
A	10 months	Physical Therapist	Children Developing Centre
B & B'	8 years	Artists	Palliative Care Unit
C	Around 10 years	Art teacher, psychologist, counsellor	Personal workshop Art therapy lecturer in college
D	7 years	Art teacher	Personal workshop Art therapy lecturer in college

### Interviewee A

After three years working in a hospital as a physical therapist, interviewee A became interested in the field of art therapy; however, due to the limited training courses in Taiwan, she decided to study the subject in UK. Her art therapy training was very much similar to what we have in Goldsmiths College. She completed her study in 2003 and in March 2004, A got an art therapist post in a Children Developing Center in a hospital, working with a team which includes doctors, occupational therapists,

physical therapists, music therapists, dance and movement therapists. A stated that the case loading of the children center was very heavy; most of the children were diagnosed as learning disability, mental retardation, or emotional disturbed. Clients who came for art therapy were mostly self-referred. It was because children, who came for art therapy, were aged between 3 to 6 years, therefore most of the session was conducted in 30 minutes compared to a normal 45 minutes session. Photos of the art therapy are illustrated below (Figure 1 & 2).



**Figure 3 - The Art Therapy Room 1.**



**Figure 4 - The Art Therapy Room 2.**

### Interviewees B & B'

Interviewees B&B' who work together have very similar backgrounds therefore were interviewed at the same time. They both earned their art degrees in Italy and came back to Taiwan in the 1990's. Given an opportunity that a hospital started its hospice care in 1998, they were involved in a Palliative Care Team until now. Their working experience also includes children and teenagers with emotional difficulties. Currently, they take part in three hospital palliative care units and also lecture art therapy introduction course in a college. In this college, art therapy was an optional subject and only undergraduate students in their last year of college could take. Interviewee B&B' did not obtain art therapist qualification, however, according to them, art therapy was in fact included in their art training in Italy, but it was not until they graduated, art therapy became an individual subject. B&B' described:

“Art is healing, in our learning experience in school, we had opportunities to observe how artists (art therapists) got involved in different clinical settings... Art is the baseline, In Italy; art therapy is what artists chose to do. Instead of interpretation people's artwork in a psychological angle, we get into our client's inner selves by working with them through art. These were two different ways of approach but they both end up helping people.”

With their belief in art as inherently healing, B & B' focused on the art making process, seeing themselves as companions with their clients and they did not analysis clients' work.

### Interviewee C

Interviewee C's undergraduate degree is in fine art from a teacher's college. Formerly, C was a children's art teacher in a private setting. Few years after, C went to France for another art training course. During that period of time, she realized how much creativity meant to an artist. C pointed out that:

In Taiwan, art education was more addressed on skill training. One's creativity was not much being emphasized... It was a shock for me when I started my course in Paris. After finishing my training there, I came back to Taiwan with a new way of thinking and started to explore some creativity programmes in my children's art group. That was the beginning of my art therapy adventure.

After adding some creative ideas in her group, more and more parents reported that children had improved their maturity. These feedbacks encouraged C to take a Bachelor's degree in educational psychology. Since that, her approach emphasized the integration of creative art studio approach with her psychology theories. But not until an opportunity was given to meet Dr. Lu, the first qualified Taiwanese art therapists, C came to know the field of art

therapy. C then took some art therapy training courses from Dr. Lu and worked as Dr. Lu's assistant for 2 years. C earned both her MA and PhD in educational psychology and counselling at National Taiwan Normal University. She has presented panels, workshops and papers in the professions of psychology, counselling and art therapy.

With certificates of family therapist and psychodrama director and being a registered counselling psychologist, C expressed that art therapy could be thought as a skill in her clinical practice which includes individual and group counselling, as well as working with women who have experienced domestic violence. C also lectures art therapy in the department of counselling psychology and the department of educational psychology and counselling as an associate professor.

#### Interviewee D

D graduated from National Taiwan Normal University and was an art teacher in a girls' high school. She received her MA degree in art therapy from USA. This training contained one-year art therapy clinical observation and another year placement. In her placement, D worked with people with borderline personality, drug or alcohol addicted and elderly with brain trauma in psychiatric wards. Upon graduation, she enrolled another PhD course in art education but dropped from the course because an opportunity was calling for her. In 1997, D went back to Taiwan, teaching art therapy in colleges. Currently, she is an art teacher in the same high school and only teaches art therapy in her spare time. According to D:

“At present, art therapy course is opened in department of art, art education, social work, special education, early childhood education, psychology and psychology counseling where being counted as an optional course and usually the subject was only taught in one term. Therefore, what students learned was the general concepts of art therapy, basic theories and no placement was included.”

D indicated that the lack of qualified art therapy educators and the restricted placements were the two main factors which could explain why there is no art therapy department in Taiwan.

Only the department of visual art in Taipei Municipal Teacher College has more complete art therapy training. Dr. Lu, the conductor, was trained in America; therefore, theories, which developed in teacher's college, were most influenced by Piaget's developmental theory and the art education theory.

### **Clinical Issues in Art Therapy**

#### The Influence of National Health System

Depending on the organization they worked within, my interviewees are influenced by NHS in different ways:

Interviewee A who worked in a children development center in a hospital mentioned the local authority in Taipei had founding for children under six years old to receive the therapy. For Children from six or above, families had to pay the service on their own. Under the hospital regulation, approximately five minutes was required after each session, for family to consult the therapist. With the consideration of it could help families to understand the process of the therapy.

Although interviewee B & B' worked in hospitals, their got paid by a foundation. According to B&B', regular meetings with team members were needed and art therapy in palliative wards was gradually recognized by other medical professionals. B& B' had been promoting art therapy by publishing articles about their work in a journal.

Interview C was running workshop in Taipei city. Since the 9/21 earthquake (which happened in 21 September, 1999), she had been involved in a project by government, helping clients who lost their families or friends in the disaster. Her clients were mostly referred by the Department of Health or the Department of Social Welfare in Taipei City Government. Sometimes, clients came from self-referred. However, C expressed these clients were not sent to have art therapy. Being qualified as a counselling psychologist and a family therapist, C declared that art therapy is a technique, which she adopted.

Being an art teacher in a high school, interviewee D only taught art therapy introduction course in colleges or lead

community workshops in her extra time. Therefore, the National Health System does not have much impact on her practice.

### Developing in Educational System

Although prior to becoming an art therapist, the professional backgrounds from each art therapist range from artists, art teachers, psychologists, counsellors, occupational therapists, physical therapists, nurses. They might either get their training abroad or from Taiwan. These different personal learning experiences give the art therapy practice a great diversity. However, the majority of the practitioners are graduating from teacher's colleges. Therefore, they come back to educational system since they are more familiar with the setting. The finding echoes Hsiung's study that she mentioned "educational art therapy is mainly studied and researched in master programs in teacher's college, and teacher's university, combining the fields of special education, art and psychotherapy or counselling" (2003, p48).

However, art therapy in Taiwan develops gradually and steadily in the educational system. It is well accepted for teachers who are looking for new techniques or people who search for "self-development". All of my interviewees had been involved in some training for the general public or other professionals, but the courses were limited within few days' workshops.

### No Formal Training Course

All the interviewees suggested the difficulty for Taiwan art therapy is the insufficient training course. Introduction course in art therapy had been taught in many colleges in the department of visual art, art education, special education, psychology and counselling psychology. In most colleges, the general concepts of art therapy were taught within one term and usually there was no placement included. As a result, art therapy is used by different professionals but seldom in depth. The TATA is setting up some programmes for its members but the trainings are limited in short-term workshops, a complete course is not well established due to the same reason as mentioned: lacking of qualified art therapists to lecture. The National Normal

College had been invited several art therapists from other countries to conduct workshops in Taiwan. However, according to interviewees C & D, this is more like experience exchange; to extend and develop art therapy in Taiwan, it is important to train indigenous art therapy educators. As interviewee C indicated:

"We need to train our own therapists. We couldn't always copy others' experience. The basic theory about human's mind might be the same but it is time to sit down and talk about what we want from our own therapists. Inviting foreign therapists to Taiwan is to extend our vision, they could not replace us, we need to alter their experience into our culture and find our own way. This is our own work; no one could help us but ourselves."

### Take Multiple Roles

All the interviewees pointed out in current situation, the interaction among art therapy practitioners is quite limited. Taiwan is a small island with a population of 22.5 million people. From the south part of Taiwan to the north part, it takes approximately five hours on a train. The transport to each city is actually very convenient. However, the capital city, Taipei, is located in the north part of Taiwan. Northern Taiwan is usually considered as higher developed. The economic, population, resource, might all give it a reason why the majority of art therapists practice in Taipei. All interviewees seem to know each other but they seldom have connection between one and the other. When I asking about the reason, the answers were "We are too busy."

For many art therapists in Taiwan, they do not merely provide art therapy service but also give lessons in different settings, for instance, social service settings, colleges or student counsellor centres. They are often invited to hold workshops or give speeches to other professionals, such as teachers, social workers and sometimes, medical doctors. Interviewee C mentioned, nearly each of the therapists takes more than one roles due to the huge demand of interests in art therapy. A supervision system is not yet established because of the same reason. As Hsiung (2003, p46) indicated this "role-hybridization" generates confusion in art

therapists practice. Being aware of the current situation, the TATA is planning to direct a case presentation every two months for members to share their clinical works. Since the TATA was just founded, all my interviewees acknowledged the need of time for the professional to grow. At present, the TATA has regular meetings every 6 months.

### Code of Ethics for Psychologist

This Code of Ethics for the Psychology profession is intended to serve as a rule for professional conduct, for the exercise of Psychology in any of its modalities. The regulation combines the Code of Ethics for Clinical Psychologist and Counselling Psychologist and is established by the Department of Health in 2001. According to this law, clinical psychologists are acknowledged as medical professionals whilst counselling psychologists belong to mental health professionals therefore could not carry out medical treatment. In current situation, art therapy has not been recognized as a formal job title. Overseas trained art therapists might apply to take a written exam, which, if passed, will allow them to obtain a psychologist license to practice in Taiwan. This Code of Practice puts therapists who do not register as either counselling psychologists or clinical psychologists an ambiguous position in the field of mental health care. As interviewee B and B' declaimed:

“There is no such profession called art therapy in Taiwan. If people entitled you as an art therapist and you were willing to take that title then you are an art therapist.”

### **The Cultural Elements**

As mentioned in the previous chapter, Eastern culture is very different from its Western counterpart. All of my interviewees had described the cultural differences and the modification they had made in their clinical practice. In the following sections, points which relate to culture issues will be addressed.

### Insufficient understanding about psychotherapy

Interviewee D stated, in Taiwan, the general public may act on insufficient knowledge or

over generalize what they learned about mental ill patients, in a literal and stereotypic fashion. Families with mental ill patients consider it is a shameful event and hardly mention about it. They usually, keep it in silence or find folk therapists, shamans, and fortunetellers to “sort things out”. Meanwhile, for families who seek for a Western medical approach, they expect doctors to give medicine descriptions. In the same opinion, Interviewee C mentioned that Taiwanese people are not familiar with any form of Western psychotherapies. She stated:

“Psychologists or psychotherapists are already restricted in this field of work, not to mention about art therapists or other expressive therapists.”

B & B' also pointed out that they used another term 美術療育 (Fine Art Therapeutic Education) to replace 藝術治療 (Art Therapy). It is because, for Taiwanese, art refers to visual art, sculpture, artifact, literature, music, drama, dance and movie, totally eight fields of art. In order not to confuse clients and their families, “美術 (Fine Art)” is being used instead of “藝術 (Art)”. In addition, it is still stigma attached to the word “治療 (therapy)” which leads to prejudice towards the patients. Therefore, B & B' added “育” (which means Education) into their title of work to bring people's attention on the healing function of art. They said:

“It (the healing function) has been existed in human's mind, people only needed to be educated to find out the healing power within but not without.”

### Authority Figure- Seeking for Answers

Rooted in Confucianism, in Taiwanese society, children are taught to have proper respect for all forms of authority. It is observed that people tend to empower the authority figure and believe the person is more knowledgeable. Interviewee A, whom was called “the Master” by her clients, gives this an example. A suggested, this title, in same way, affects to build up the therapeutic alliance. She went on to explain, “the Master” is seen as the authority figure by parents, they expect “the person who knows better” give a solution to their children's problem. Whereas being called as “the Master”,

she is easier to take control of the session especially while the child is testing boundaries. In addition, Interview A suggested, this authority-directed orientation is also happened among therapists, which is to say; the more experienced art therapists are seen as more authorized figures. In the contrast, the younger or less-experienced therapists are regards as less knowledgeable. I also found that all my interviewees referred Dr. Lu as a key figure in Taiwan art therapy, the TATA is established by her guidance, consultancy and leadership. During the interviews, very often, I would hear sentences starting as “Dr. Lu said that ...” or “Dr. Lu suggested that...”.

### Not used to expressing feelings

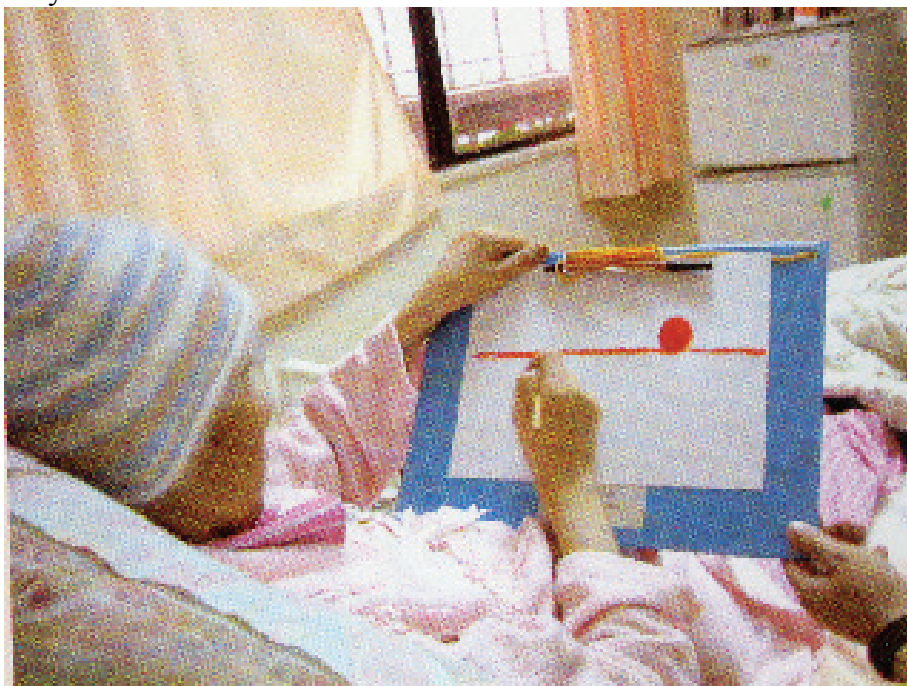
Taiwanese people are not used to expressing their feelings. There is no such culture to talk about oneself in public with the fear of “losing face”. Interviewee C pointed out that it is difficult for her clients to talk about their feelings, especially in expressing their sadness or difficulties. Being humble is appreciated in Taiwanese society therefore it is easier for

people to praise others than cherish oneself. As C mentioned:

“People were educated not to show their feeling in public, especially the feeling of sorrow or grief. Our culture taught us, tears are not allowed because crying represents weak.”

Furthermore, C indicated that in Taiwanese society, topics of death or accidents are considered as bad luck. Therefore, a general agreement not to mention about death is formed. From their work in palliative care units, interviewees B&B’ added:

“When it comes to the matter of facing death, we found Western people are more active to show their anger, they reveal their feelings by drawing gun, knife and blood. But in Taiwan, people are more reserved. Pictures of sunset and bended flowers appeared most frequently in our clients’ artwork (Figure 3&4). Nearly all of our clients had say: “I rather die earlier because, I do not to see my family entangled with my illness anymore.”



**Figure 5 – A client drew “Sunset” artwork in Palliative Care Unit.**





Figure 6 – “Sunset” artwork by a client in Palliative Care Unit.

### Collective Self

Just like an old saying goes “what happened in family, stay in family”. Interviewee C made a statement that Taiwanese people do not have individual Self; their Self was built up within their families. To give it an example, C talked about many of her sexual abused clients tended to have a sense of guilty, feeling guilty about betraying their family when they revealed their difficult experience. Interviewee A, interviewees B & B’ all expressed that working with Taiwanese clients, therapists must be sensitive to the issues which clients’ families brought in.

### Combining Taiwanese Culture into the Practice of Art therapy

From the interviews, findings indicated that art therapists in Taiwan had started to combine Taiwanese culture into their clinical practice. For instance, in their work with terminal ill

patient, interviewees B & B’ applied goddess “觀音 Kuanyin” (see Fig. 5) portrait painting in palliative care wards. In many Eastern cultures, Kuanyin, Goddess of Mercy, is a symbol of kindness and compassionate. People believe that who hears her name and looks to her will end the sorrows of birth, age, disease and death. The painting course was conducted by B & B’ once or twice weekly before discharge or death of the client. They found this approach alleviating patients’ mental and physical symptoms. In addition, B & B’ pointed out that at the side of medical professionals, the palliative care team also included Buddhist monk or nun. According to B & B’, the majority of their clients (90%) were either Buddhism or were willing to take Buddhism funeral rituals when they die. The role of the Buddhist nun or monk was to help these terminal ill patients with their spiritual needs (A job advertisement for Buddhist nun or monk is added in Appendix D).



Figure 7 - Kaunyin Portrait Painting.

In terms of art media, interviewee C applied calligraphy (see Fig. 6-8) in her art therapy sessions. Calligraphy is an art dating back to the earliest day of history, and widely practiced by Chinese people to this day. Lee's (2004) research about Chinese calligraphy revealed that although art of calligraphy has a thousand-year history, the general public shares the emotional responses toward the artworks. Moreover, different forms of calligraphy such as the shapes of lines, texture, space arrangement and dynamic control of the brush could also disclose different levels of aesthetics and feelings. Applying calligraphy brush to create

Chinese characters or to paint in the therapy sessions, C declared that:

“We could not always adopt the Western model; so many things are being forgotten in our own culture. When the ink drops on the Chinese paper (known as rice paper in English), it creates a rhythmic balance between brightness and darkness, density and lightness and produces the individuality and the style of the painter himself. The artistic conception of calligraphy is very similar to the Chinese philosophy. Just as the ink on the paper, the evidence of life could never be hid.”



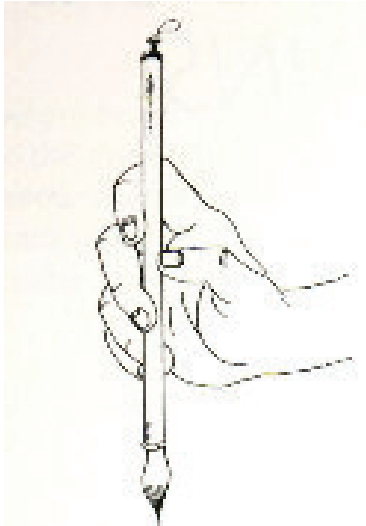


Figure 8 - Calligraphy Brush.

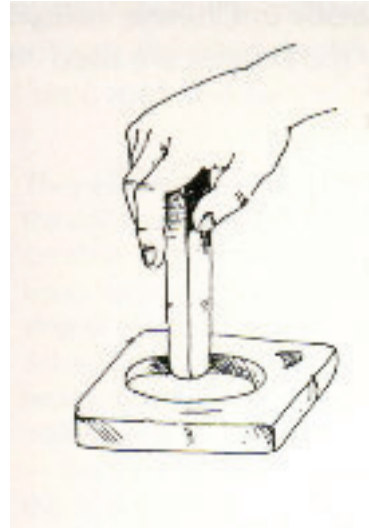


Figure 9 - Chinese Ink well.

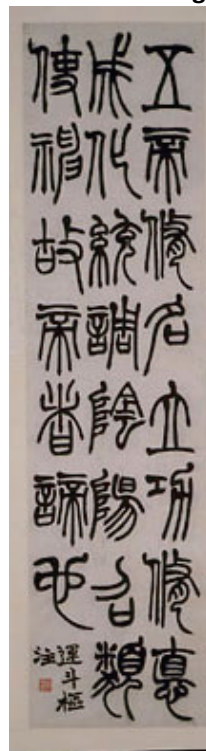


Figure 10 - Chinese Calligraphy.

Another spectacular example about how art therapy combines with Taiwanese folk legend and cultural custom was also given by C in her work with children who lost either their families or close friends/classmates in a historical earthquake in Taiwan, 1999. Four points are highlighted in her approach:

1. Since death is a cultural taboo in Taiwan. By drawing pictures such as grave yards, crypts and tombs of their family/friends, it is found that children were able to talk about the fear of death and bring up their sadness and grief to a conscious level.
2. In view of Taiwanese culture, people believe after-life. As a result, it is said that if one died by accident, he would end up suffering in hell because of the unnatural death. From the experience of work with her clients, C found that, very often, these children drew pictures such as presents, food, even weapons for their beloved and by doing so, these children believed it could provide protection for their family/friends.
3. Combing the Taiwanese funeral ritual with the symbolic meaning which

artwork could offer, children were firstly asked to pick up a specific colour which they thought it was most likely to present the personality of their family/friends and used these colours to decorate tablets which is believed to have the souls of the deceased in Chinese culture. It then followed by each child took a bow in front of a domestic table, which has the collective tablets of the dead, and said good-bye to their family/friends. C stated that it is because the coloured tablets have symbolic meanings as well as "physical existence"; therefore, in the process of artwork making and the demonstration of the Taiwanese funeral ritual, children experienced a procedure of mourning and bereavement.

4. The last point is, according to C, after finishing artworks making, children in the art therapy group often expressed the need to set the artwork on fire or their family could not receive the pictures they drew. In traditional Taiwanese culture, it is thought that by burning the paper-made objects such as money, cars, houses, toys and some daily substance, people could send these "presents" to the dead. Therefore, C brought children to the playground and set the artworks on fire with their belief that it could be sent to their be-loved, these young clients shows their satisfactions through the entire procedure.

## Discussion

### Introduction

From the interviews, several findings have revealed some clinical and cultural issues of practicing art therapy in Taiwan. This chapter will firstly explore elements, which related to the development in the field of art therapy; next, topics about the art therapy education in Taiwan will be highlighted. In the broader field of mental health, issues of art education, folk therapies and folk religions have considerable impact on practicing art therapy in Taiwan therefore subjects for discussion will be

included at the end.

### Art therapy developments

As Gilroy and Hanna (1998, p268) pointed out when establishing art therapy as a profession there are several areas need to be addressed: the interest group, the nature of mental health care and the relationship with allied professions and finally the social, political and cultural context. In this section, these topics will be addressed.

#### The interest group

The art therapy pioneers came in different backgrounds but most of them were from teacher's colleges. Due to the reason of there is no formal art therapy training in Taiwan; many of them were either trained in the UK or USA. They returned to educational system to practice, centering in Taipei city. With the growth of the interest group, the Taiwan Art Therapy Association was founded in June of 2003. However, given that only a handful of people are qualified art therapists, they put their effort on promoting art therapy in different settings and running short courses in colleges. Yet, these art therapists' activities have remained isolated and the interaction between practitioners seems to be limited. Nearly each of them holds more than one job, the role-hybridization puts confusions into art therapy practice. In recent years, with a rapidly growing interest in the society, a phenomenon of using art therapy as a supplied technique by teachers, social workers and other medical specialists is being observed. In addition, there is a trend to use art therapy as a way for self-development and self-healing by the general public. However, without standards for clinical practice and a supervision system between art therapy practitioners, the position of the profession will stay ambiguous.

#### The nature of mental health care

Mental health care in Taiwan could be discussed in two areas: the Western medical model approach and the Taiwanese folk therapies. Generally speaking, the Western medical model dominates treatments for the mentally ill in hospital and there is no such tradition for artists working in hospitals as well as other mental health care settings, but in recent years, it is

observed that psychotherapy or expressive therapies are catching attentions of psychiatric specialists and the populace. In the field of mental health care, art therapy is found growing steadily in counselling centres and learning groups in communities. Moreover, several hospitals have started to provide art therapy services. Still, interactions between art therapists and other medical professionals are seemed to be insufficient. Also, it is because art therapy service is not embraced in the National Insurance Programme (NIS) due to its limited budgets and the large-scale use, clients are either self-supported or get founding by charities. Taking these elements into account, art therapy is situated in a confusing position in mental health care. As Wood (1999) mentions, it is an international tendency in the market culture in health care and user's right movement that a demand for clear evidence of effective practice is increasing. Therefore, in order to demonstrate effectiveness of art therapy clinically practice and being recognized as an individual profession, it is time for Taiwanese art therapists to improve the interactions with other medical specialists and expanse an evidence-base research in their practice.

When it comes to the matter of mental health care, folk therapy is another area, which needs to be pointed out. It is still common for people to seek help from traditional healing systems. Folk therapies such as Chinese Medicine, 風水 Feng-Shui (Chinese geomancy), and 算命 Suan- Ming (Chinese Shamanism) are still popular in today's Taiwanese society. The central theory of these folk therapies lies behind appreciating the value of harmony, that is, the need to live in harmony with the nature, supernatural entities, other individuals, as well as the inner and outer self. The belief of finding the balance among these systems shapes the Taiwanese psyche. In some way, these folk therapies have close link with Taiwanese folk religions as the religions emphasising upon the same value. For many Taiwanese people, the roles of folk therapies, and folk religions can become confusing because their functions are interconnected. These beliefs not only have impact on the Taiwanese mental health care but also influence

all perspectives in people's daily life. Another significant help-seeking behaviour, which could be seen among the Taiwanese clients, is that people who look for mental health care prefer to try varieties therapies at the same time. That is to say, a person who goes to see a psychiatrist may also receive treatments from Chinese medicine or consult a Feng-Shui master (Zeng, 1996, p673). As Lee suggests, "solutions for emotional problems neither rational nor irrational, neither logical nor illogical; it all depends on the client's perceptions" (2002, p6). Therefore, to help people with their emotional problems, it is useful for art therapists in Taiwan to acknowledge the motivations of people who look for folk therapies and use the nature of their belief to help clients engage within art therapy sessions. Topics about folk religions will be presented shortly in the following sections.

### **The social, political and cultural context**

In this section, I am going to argue the criteria of the TATA memberships, art therapy education in Taiwan and the entrance examination of the art therapy Graduate School in Taipei Municipal Teachers College (TMTC).

#### The TATA memberships criteria

Due to the reason that there is no art therapy degree offered in Taiwan, in order to be a professional member, individuals need to either have overseas art therapy certificate or of at least a training of psychology or other related post-graduated programme. These factors make the memberships criteria very complicated. To obtain the criteria, a background of psychology and experiences in mental health care are seem to be more important than art. For an association, which is newly formed, the psychology and educational base criteria might help to establish a professional presentation, however, it also leads the professional to the direction of psychology, psychotherapy theory orientated because art school students do not have enough channels to get in. Especially with the code of ethic for psychologists which was past in 2001, art therapy practitioners are expected to receive a national writing examination and get the qualification in order to work in the field of mental health care.

## The art therapy education in Taiwan

Many teacher's colleges have initiated introductory art therapy courses and with the increasing interests among different professionals, it is found that many people wish to take part in the field of art therapy. Since art therapy is not reckoned as a formal job in Taiwan, the ownerships of the profession will continue struggling if a standard or a regulation of art therapy education/practice is not established.

## The art therapy MA course

It is because of the limitation of art therapy educators and placements support a formal art therapy course is still unavailable in Taiwan. However, TMTC is going to start the first art therapy MA course in 2005 academic year. I attempted to research details concerning the course in TMTC but further information could not be obtained except the requirement of the entrance examination.

In Taiwan, most MA and PhD programmes offered by colleges or universities are entered through either individual examinations or directly from college or universities. In theory, language ability is assessed in nearly every entrance examination. The art therapy course in TMTC not only tests students' language abilities and knowledge of psychology but also examine their art, which is asked to finish in three hours. A relevant working experience in mental health care is not mentioned and whether or not an interview will be held afterwards is still unknown. Using an examination to recruit students is very common in Taiwan since the whole society is highly emphasised on academic achievement, examinations are regarded as the best way to assess students' abilities. Personally, I think an experience of work in the health or social services and an evidence of interests in art should be more important than whether students have the ability to pass the exams or not. After all, human's mind could not be measured by written works. Since individuals without a psychology background are relatively difficult to enter the course, if this is the model of future art therapy training in Taiwan, then there is a potential that Taiwanese art therapy education will be more psychologically based. On the

other hand, this is the first art therapy MA course in Taiwan and the information about the programmes design as well as the backgrounds of the art therapy educators are still omitted. More investigations need to be taken for further understanding.

To sum up, factors of art therapy in Taiwan developing in the educational system are:

1. The majority of art therapy pioneers came from teacher's college backgrounds.
2. The theories of art therapy are taught in teacher's colleges.
3. Mental health care in hospitals is still dominated by medical model.
4. Evidence base researches in art therapy are still limited.
5. The restriction of financial supports from public health bureau.

To conclude, from the points mentioned above, to prevent the fragmentation of the profession, it is essential for practitioners:

1. To improve interactions with different professionals/ to integrate different theories/ to integrate different culture identities.
2. To train Taiwanese art therapy educators.
3. To set up a standard and a clinical supervision system in art therapy education and practice.

## **Indigenous Taiwanese Art Therapy**

Since psychology and psychotherapy theories are basically formed in Western societies; some basic assumptions in the theories are western cultural orientated however, the Taiwanese society still holds some collectivism beliefs and traditional values. Therefore, developing art therapy in Taiwan, influences of these cultural differences could not be underestimated. In order to fit in the Taiwanese society, art therapists are required to show understanding about the traditional values, beliefs, and customs. In this section, four issues regarding what indigenous Taiwanese art therapy could be benefited from will be highlighted. First, there

will be a discussion focusing on the importance of looking back to the traditional values. Next, an overview of folk religions and folk therapy will be explored. Thirdly, the concept of art education in Taiwan will be illustrated. Finally, an implication of folk art and indigenous culture will be reported.

### Traditional values

#### 1. Authority direct:

As mentioned in the previous chapters, Taiwanese people prefer more structuralized therapy session. Traditionally, people are not used to expressing their feelings and an authority figure is usually considered as more knowledgeable. This can be seen in Hung's research (2000) about the behaviours of Taiwanese clients, where she discovered that more authorized, structuralized sessions are more easily to fit into Chinese/Taiwanese society. Zeng (1996) also mentions that one might not be able to apply the client-centre counselling on Chinese/Taiwanese clients without adjustments. He goes on to say, people who go for therapy anticipate an answer of the illness could be given by the "professional". From a cultural perspective, if a therapist could not play as an authority figure in the beginning of therapy to meet their clients' expectation, very often, the therapeutic relationship is hard to start. Therefore, a better-structuralized art therapy is more suitable for people, who still hold traditional beliefs whilst the client-centre approach is more accepted by young generation whom is influenced by Western culture.

#### 2. Family direct:

Case (1998) talks about how the roles of family have impact on her working with her clients in Hong Kong. As Hung (2000) mentions, the Chinese are not familiar with the concept of 'boundary' and 'separation' (p174), a major concern that arises here is: would it be possible to encourage Taiwanese clients to explore his/her personal issues without taking others into consideration? For most Taiwanese

families, relationships between parents and their children are bonded very tightly. It is common for most people live with their family until they get married and have their own family. In Taiwanese society, it would be seen as "un respectful" and "selfish" if elderly parents are left alone by their offsprings. Hung (2000) states that Chinese/Taiwanese parents tend to take their children's behaviours as their own responsibility. Also, in Chinese/Taiwanese culture, it is considered as a good virtue to obey parents without a question. Therefore, working with Taiwanese clients, topics such as confidentiality, self-exploration and self-fulfillment are more complicated. Therapists need to be aware of issues, which the whole family brings in.

### Folk religions

Taiwan is highly diversified in terms of religions. All kinds of faiths mix together and develop as a significant character in Taiwanese folk religions. The Taiwanese worships all kinds of gods and goddess and many of these deities are defined persons who actually lived in the past and made important contributions to the society. People would worship a god/goddess according to each deity's specialty. For instance, the goddess 觀音 Kuanyin, presents love and mercy. This figure therefore is chosen by art therapists in the hospice care as a symbol to ease the clients' pain.

Another example is given as art therapy combined with religious ritual. In folk religions, the universe is divided into three realms, deities, humans, and deities sent to protect spirits and ghosts. A lot of sacrifices are prepared in the ceremony and particular paper money was burned as an offering to the spirit. The Taiwanese believes after life, in which it has its own systems, laws and currency. Only by the process of burning, these paper made objects could be sent to the dead. There are different stamped images on the paper and each has its specific styles and patterns. According to the uses and meanings of the paper money, it could be roughly sorted into the gold papers: for deities and the silver papers: for ghosts<sup>8</sup>. Burning artworks for the dead is therefore using religious ritual to support art therapy practice. In

my opinion, both the religion ritual and the symbolic meanings of the paper money or other paper made objects could be used as references for Taiwanese art therapy practitioners.

Finally, the last point I want to mention here is, for most Taiwanese, Confucianism is a philosophy with a religious function. It emphasises the worship of ancestors and concerned with the moral cultivation of people in order to keep harmony within others and the nature. Religious offerings are made to deities or ancestors on their birthdays and other festivals. By doing so, people believe that this could bring peace and fortune. The idea of living harmony with others and the cosmos is often the theme, which most folk therapies hold on with. In other words, traditional value, folk religions and folk therapies are all interrelated, and, in order to develop Indigenous Taiwanese art therapy, those three elements can help with art therapists in providing qualitative service which aims at demonstrating the difference use of technique with different client's groups.

### Art education in Taiwan

When considering applying art therapy for the Taiwanese, it is important to understand how art is taught in general in Taiwanese society. Traditionally, art education in primary schools is called 美勞 (Mei Lao) which combines 美術 (Mei Shu) and 勞作 (Lao Zuo), focusing on “drawing” and “handicraft”. Although Taiwanese government highly values the importance of art education, the outcome of it is not satisfying. Researches on Taiwanese 美勞 education indicate that (Huang,1993; Lin,2000): First of all, instead of having a systematic art education approach, 美勞 education in Taiwan is swinging between Western and Japanese education policies. Without a main theory makes the Taiwanese art education fragmented. Secondly, 美勞 education focuses on hand skills and the practical function of art, as a result, one's creativity and flexibility are missing. In addition, it is because the academic achievement is seen as the major purpose for children in schools; teachers tend to replace the art class by other major subjects such as math or English. Moreover, the model of Taiwanese art education is more competition-oriented; in order to win a

competition, the drawing skill and the realistic of a painting are highly appreciated. These factors have enormous influence on people's viewpoints of art. Therefore, to an art therapist whose goal is to encourage spontaneous, original expression, the freedom of making artwork and expressing feelings in therapy sessions should be addressed in the context of art therapy. Only without the fear of being criticized and scored by the therapist, clients are able to express their emotions and alleviate their stress.

### Folk art and Indigenous art

Taiwanese folk art and Indigenous art are also the areas that art therapists could explore. From the interviews, it is found that some practitioners are beginning to associate their practice with Taiwanese art. Using Chinese painting and calligraphy in art therapy sessions give this an example. In view of the fact that nearly every student has class in Chinese painting and calligraphy, Taiwanese people are familiar with this form of art and it is agreed that practicing these activities could help with the improvement on one's emotional stability. To practice art therapy in Taiwan, therapists could also apply folk arts such as paper cutting, knotting and ceramics, which continue to be fairly common in Taiwan. In making full use of traditional art in art therapy practice, clients will be benefited by the pluralism in this cultural context.

Although aboriginal people account for only about two per cent of the whole population. Taiwan is enriched by the cultures of 12 indigenous tribes. Arts such as woodcarving, weaving as well as pottery have long played a fundamental role in indigenous people's life. Each ethnicity develops its own distinct style. In recent years, the Taiwanese government has shown growing interests in developing and promoting indigenous art; meanwhile education professionals have also put more efforts in introducing aboriginal culture. As Farris-Dufrene and Garrett (1998) describe how art therapy could learn from Native Americans art and culture. In a similar vein, art therapy in Taiwan can also explore Taiwanese aboriginal culture, the uncharted region which art therapy literature has not reached.

## Conclusion

This study was engendered by the need to know more about how art therapy develops in Taiwan, especially how it relates to Taiwanese cultural and social climate. Although art therapy is imported from Western countries, it is found that Taiwanese art therapists have found a way to adjust their practice and formed a new style of approach. This research also suggests that by combing traditional value and belief into art therapy clinical work, an indigenous Taiwanese art therapy could be shaped. In this chapter, findings of the research, the essential factors, and challenges involved in the provision of art therapy in Taiwan will be summarized. Limitations of the study and further issues, which need to be explored, will be illustrated at the end.

Broadly speaking, art therapy practitioners in Taiwan could be divided into three: (I) the overseas trained art therapists. (II) people who get their art therapy training in Taiwan and (III) people who have attended art therapy workshops and use art therapy as a supplied technique. From the interviews with five Taiwanese art therapists, findings revealed those who have overseas art therapy qualifications mainly get their training in UK or USA and their professional backgrounds are various. The interesting point here is that many of their first degrees are finished in teacher's colleges. For people who do not have overseas training but show interests in art therapy, they might get some art therapy academic credits to obtain relevant knowledge. In order to get familiar with practice in art therapy, they might also go further on being supervised by a qualified art therapist for a period of time before entering the field of art therapy. It is also observed that with a rapid growth of interest, many other professionals use art therapy techniques, which they learned from some art therapy workshops, as supplied tools in their own practice. These factors combined with other political and social issues make the ownership of art therapy appeared unidentified; therefore, to provide a high quality service to clients, clinical standards in art therapy practice, a supervision system, and the communication among practitioners are all necessary.

Another interesting discovering is that Taiwan art therapy mainly develops in the educational system. In recent years, many colleges, especially teacher's colleges, have started to initiate art therapy introductory course. It is found that the lack of art therapy lecturers, supervisors and placements are the core problems of establishing a formal art therapy programme in Taiwan. On top of this, the TATA put its weight on its members' psychology background, plus the first MA art therapy course in Taiwan recruit students who have knowledge of psychology theories and counselling skills. These two factors are all seen to have enormous impact upon the growth of the profession. However, Taiwan art therapy is still in its early stage of development. Further information about the course structure is required to gain a better picture.

The findings also show that art therapy in Taiwan gradually extends its strength in community learning centres as a way of self-improvement or self-enhanced. Alongside that, several hospitals have started to offer art therapy service yet this area of work is relatively limited. The vital communication and mutual understanding among different professionals with the support of the organizations are identified as importance factors for developing art therapy in the ground of mental heal care.

It is because art therapy is imported from Western countries. Therefore, to apply art therapy in Taiwan, the essence and the nature of the cultural difference are unavoidable. From the findings of this research, the interviewees clarified the difference when practicing art therapy within the Taiwanese society, in which, values of harmony and balance are highly appreciated. And, to work with Taiwanese clients, the therapeutic relationships and the role of the client' family need to be specifically allocated. Furthermore, to broaden the diversity and scope of art therapy and to deliver best quality care for clients, this research suggests that Taiwanese art therapists could learn from being sympathetic towards art education in Taiwan and being appreciative of folk therapies, folk religions and folk art.

Although the responses from interviewees give the opportunity to reflect the current

situation of art therapy in Taiwan, further research about the profiles of each TATA member, the art therapy MA course structure in TMTC, the training of art therapy educators, and the position of art in practicing Taiwanese art therapy are all interested points, which need to be addressed. In its infant stage, Taiwan art therapy has showed the energy and strength, the conflicts and diversity. This research indicates that the professional is going to develop in its unique ways. The integration of East and West is beginning to take place, and it is clear that the process is full of excitement and challenge. After completing my training in UK, I am full of hope on taking part in making the history of Taiwan art therapy.

## Endnotes

1. In this study, Chinese culture refers to culture in Taiwan and American culture refers to culture in America only.
2. For more information, please check Government Information Office: <http://www.gio.gov/taiwan>
3. Yin: the force of darkness Yang: the force of light.
4. Five elements: Metal, Wood, Water, Fire, Earth.
5. Qigong: slow, gentle martial arts that combine breathing and movement to regulate the bodily energy.
6. Yi Cing Lu, the chair of the Taiwanese Art Therapy Association, is the first qualified art therapist in Taiwan. She completed her PhD degree in fine art in Spain and attained her Master degree of express therapy in University of Louisville and since she came back to Taiwan, she began to teach art therapy in visual art department in Taipei Municipal Teacher College. Many of her followers, especially people who graduated from teacher's colleges, either got their art therapy training in Taiwan or abroad, started to teach art therapy introduction course in universities or provide workshops for students, teachers or community learning group.

7. The TATA web site: <http://www.arttherapy.org.tw>
8. For more information about paper money: <http://www.lib.ntu.edu.tw/spe/taiwan/religion/religionfrm.htm>  
<http://www.bynet.com.tw>

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## Appendix

### Appendix A

#### The criteria of The TATA memberships

Professional Member: People who fit the following criteria and approved by the TATA Administrator Board could be the professional member:

1. Individuals who have completed post-graduate level educational training in (or associated to) art therapy and have currently work in the field of medical, educational, or mental health care environment.
2. Individuals who have completed post-graduate level educational training in art, psychology, occupational therapy, social work, medical, nurse, public health, education and have completed at least 15 art therapy credits, writing about art therapy thesis, 700 art therapy supervisions hours, and above 1 year working experience in the field of mental health care.
3. Individuals who have completed doctor degree training, and currently teach in college or university, doing research or teaching in art therapy and have above 2 years working experience in the field of mental health care.
4. The TATA regular members who take the TATA training courses and have been regular members above two years.
5. Individuals who have (or have not) completed post-graduate level educational training in art, psychology, occupational therapy, social work, medical, nurse, public health, education and have completed at least 15 art therapy credits; have at least 3 years working experience in the field of medical, education, or mental health care before the TATA was formed, and have currently working in one of these fields.

#### Regular Member:

1. Individuals who have completed graduate level educational training in art, psychology, occupational therapy, social work, medical, public health, education and have identified the TATA mission statement, and who are currently working in the field of medical, education, or mental health care.
2. Individuals who have completed graduate level degree and have at least two years working experience in medical, education, or mental health care, and who is currently working in these fields and using art therapy skills.

#### Student Member:

1. Individuals who is in their third year (or last year) graduate level educational training in art, psychology, occupational therapy, medical, public heath, and education.
2. Individuals who is in their placement who identified the TATA mission statement and have completed their training which associated in the subject of art therapy.

## Appendix B

### List of Institutions which provide Art Therapy

Name of the institution	Clients' group	Location
National Taiwan University Hospital (Palliative Care Units)	Children, Adolescents, Adults, Elderly.	Taipei
Taipei Veterans General Hospital ( Palliative Care Units)	Children, Adolescents, Adults, Elderly	Taipei
Taipei Veterans General Hospital (Psychiatry Department)	Adolescents	Taipei
Tri-Service General Hospital (Palliative Care Unite)	Children, Adolescents, Adults, Elderly	Taipei
Taiwan Adventist Hospital (Children Development Centre)	Children	Taipei
Hsin-Chu Wei-Cong Memorial Hospital (Psychiatry Department)	Adults	His-Chu
Te-Lan Learning Disability Centre	Children	Tai-Nan
Hau-Ren Development Centre	Children, Adolescents, Elderly	Taipei
Taipei County Domestic Violent Unit	Victims of Domestic Violent or Sexual Abused	Taipei County
Shiuh-Li Liuh Memorial Foundation	Children, Adolescents, Adults	Taipei

The recourse is from the TATA web site: <http://www.arththerapy.org.tw>

## **Appendix C**

### Interview schedule

1. What is your first degree?
2. How long have you been working as an art therapist?
3. Why you chose to study art therapy?
4. Could you describe your training background and experience?
5. What group of clients you have been working with?
6. How do you get your referral?
7. Could you describe your practice setting?
8. Are you currently working with any medical professionals? If yes, could you describe the interaction with them?
9. In terms of culture perspective, could you describe how you work with Taiwanese clients?
10. In terms of culture perspective, could you describe the artworks of your clients?
11. Do you have any idea of any training programme in relation to art therapy in Taiwan?
12. Could you describe how the Taiwanese Art Therapy Association comes to the force?
13. Could you describe how the national health system affects you and your practice in Taiwan?
14. How art therapy developing in Taiwan?

## **Appendix D**

Below is a piece of advertisement for Hospice care from Taipei Veterans General Hospital, one of the leading Hospitals in Taiwan.

We are looking for a reliable, conscientious monk/Buddhist who will be willing to do hospice care and can carry out clinical Buddhist religion education. The position requires an experienced monk/Buddhist nun or Buddhist who has considerable experience of at least 10 years learning in Buddhism. Age 28-55 and first degree in Buddhist College is preferable. Applicants need to be enthusiastic, able to work independently. Highly organized and trusted, excellent communication and computer skills required. Ability to work in an environment that supports and helps patients. Successful candidate will be required to attend a training course on nursing care of 60 hours' duration, for which the certificate will be given.

# Form a crafting: Teaching Strategies of Basic Design from the Perspective of the Tacit Knowledge Theory

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In order to solve the old problem that beginners lack design knowledge and experience, cannot connect abstract “principles of composition” with design practice, meanwhile solve the new problems arising from the process that basic design education responds to the development of the information age, this article founded on the tacit knowledge theory and Kolb’s Experiential Learning Theory (ELT), developed a tacit knowledge transfer model (AERS model), which aims at basic design education (including four stages of Action, Experience, Reflective Practice, and Situation) over three methods (from crafting, analogical reasoning, situated teaching). This study designed and implemented a 12-week basic design program. With ethnography, 28 beginners’ changes in language and behavior due to different teaching methods / strategies at each stage were observed, interviewed, and accessed. The research results showed that the AERS model proposed is very helpful to overcome the problems of basic design education. In the four stages, the changes of personal design knowledge and ability are related to the strong or weak tacit knowledge of personal crafting and the changes of computer software operation knowledge. These three methods have significant influences on the transfer and internalization of tacit knowledge in the different aspects of individual beginners.

**Keywords** – basic design courses, tacit knowledge, craft, teaching Strategies, design education.

**Relevance to Design Practice** – This article has great value towards the fact that the beginners in the field of basic design course, have difficulty when trying to solve problems, whilst lacking design knowledge and experience. It proposes the AERS model for teaching strategies, not only is it really effective, but it also provides significant influences on the transfer and internalization of tacit knowledge in the different aspects of individual beginners.

## Introduction

Under the advent of the information era, many transformational concepts in design theory, education, and practice have been proposed, but these changes do not seem to have significant impacts on basic design education (Wang, 2010; Uysal & Topaloalo, 2017). The year 2019 is the 100th anniversary of the Bauhaus. Studies on the basic design curriculum in art and design colleges have found that following the Bauhaus lineage is their basic consensus, which the teaching content is mainly principles of composition and color theory (Findelli, 2001;

Boucharenc, 2006; Wang, 2010; Uysal & Topaloalo, 2017). These traditional curriculum settings have little changes over time. Under the popularization and application of computer technology, the teaching of computer design logic and operations, such as computer-aided design (Illustrator, CAD, 3d Max), has been added to the curriculum to help students carry out digital design.

However, students often have the old problems of not understanding why they should learn these lessons of “composition” due to lack of design knowledge and experience during the class (Chai & Fan, 2018). Students also have the

new problem of lacking the ability to combine operation technology with design concepts (Uysal & Topaloğlu, 2017), because of the separation of software technology learning from the operation process of design projects. Therefore, under the information age, it's necessary to study basic design teaching, and explore teaching methods / strategies and contents to follow the tide, in order to compensate the lack of design knowledge and experience of students and to avoid more problems in the process of the extensive reorganization and paradigm shift of design education.

Crafting is the source of design (Forty, 1995). It is also the most traditional sense of "learning by doing" in design education, in which related knowledge is "handed-down" from master to apprentice. This kind of apprenticeship-based knowledge transfer only occurs through personal contact and communication between the master and apprentice. Polanyi (1958) described tacit knowledge as transmission between the master and apprentice. The conversion of tacit knowledge is a complex process involving many subtle methods of experiential learning (Howells, 2000). This study analyzed tacit knowledge in the context of art and design research, and adopted ELT to integrate handicraft and related knowledge into basic design courses, with the aim to provide a new solution to the problems existing in basic design education.

This paper first discusses the personal classification and transmission characteristics of the tacit knowledge of designers. Based on the tacit knowledge theory and ELT, it proposes a model for teaching strategies, which includes four stages of tacit knowledge path transfer: Action, Experience, Reflective Practice, and Situation. Then, it presents a basic design teaching activity starting from handicraft, and discusses the experimental teaching. The results indicate that the proposed teaching strategy is effective.

## Literature Review

This study reviewed the literature on tacit knowledge, handicrafts, basic design courses, and design education, and found that it can be

analyzed from two aspects. One is the tacit knowledge of designers; the other is design education methods. The relevant literatures are sorted and analyzed as follows:

### Designers' Tacit Knowledge Types and Transmission Characteristics

Polanyi (1958) mentioned that, "There are two kinds of human knowledge, explicit knowledge (i.e. to "know that" something is the case) and tacit knowledge (i.e. "knowing how" to do things)". In *The Tacit Dimension*, he emphasized the tacit knowledge of individual scientists, and divided it into two classifications: one is skill, technique, and art (i.e. weak tacit knowledge), the other is judgment, connoisseurship, interest, and creativity (i.e. strong tacit knowledge, or tacit ability) (Polanyi, 1983; Adloff, & Kaldewey, 2015).

Polanyi's (1958) exposition of personal knowledge can provide an understanding of the knowledge types and transmission characteristics of craftsmen and designers. Firstly, Polanyi emphasized "learn by example" when discussing skill and art training. In "learning by example", the practical knowledge of skill is called "knowing how", while the regular knowledge of crafts is called "knowing that". For beginners, it is easier for them to master knowing how when they learn face to face with craftsmen (Polanyi, 1958; Yu, 2002; Schindler, 2015). Polanyi argued that apprentices can unconsciously acquire the precept of a craft by observing the master, facing his example and imitating his efforts, but even the precept of the craft is not clearly known by the master himself. Chan (2015) found that students can gain a better understanding of craft and design knowledge when having face-to-face contact with craftsmen.

Secondly, when discussing aesthetic ability, creativity and imagination, Polanyi (1983) considered that the cultivation of this kind of tacit knowledge could not be programmed or formalized, but could be promoted by analogical reasoning and example reasoning. Budge (2016) found that artists, craftsmen, and designers often reflect their creative practice through the craft practice and skill demonstration, while students use behavioral analysis of analogical reasoning according to teacher's demonstration, create



their creatives, and improve their ability. However, Chai et al., (2015) found that the professional level of designers also has an impact on analogical reasoning.

Thirdly, tacit knowledge belongs to personal knowledge, which is deeply rooted in individual behaviors and embedded in practical activities. It is difficult to accumulate, store, and disseminate knowledge on a large scale with space and time limitations (Polanyi, 1958). Craftsmen, learners, and designers must gather at the same platform and understand handicraft skills through practical operations, rather than through summarized written statements (Wood, Rust, & Horne, 2009).

As discussed above, a designer's personal knowledge type can be divided into explicit knowledge, and strong and weak tacit knowledge. Weak tacit knowledge refers to techniques and skills, such as ceramic making, bamboo basket making, computer software operation skills, etc., Strong tacit knowledge refers to judgment, connoisseurship, interest, and creativity, which is also called designer's taste. "Learning by example" can enhance the weak tacit knowledge of individuals, while analogical reasoning behaviors can enhance the strong tacit knowledge of individuals. When tacit knowledge is transmitted, it is necessary to practice or demonstrate communication in a common space to realize tacit knowledge transfer between individuals, or internalization between the explicit and tacit knowledge of individual.

## **Learning by Doing and the Experiential Learning Theory**

For developing novice designer' skills, the most common method is learning by doing (Dorst & Reymen, 2004; Smith, 2015). Teachers use design programs to carry out teaching activities in the design studio (Lawson & Dorst, 2009), even the basic design teaching also focuses on learning by doing (Arslan, 2012; Kocadere & Ozgen, 2012; Uysal & Topaloğlu, 2017). Arslan (2012) found that the teaching of basic art design advocates experiential learning, meaning teachers provide students with different experiential learning environments, learning theories, and practical courses. Uysal and Topaloğlu (2017) proposed learning by doing, and further broke down the basic knowledge points of design into five modules and two binders, which helped beginners learn the knowledge in the basic design course.

In fact, the above-mentioned teaching methods are all included in ELT (Figure1), which was proposed by Kolb (1984). He suggested that the learning process can be divided into two dimensions: comprehension and transformation. The dimension of comprehension includes two opposite experiential modes: (1) direct comprehension of specific experience; (2) indirect comprehension of the experience represented by symbols. The dimension of transformation includes two opposite experiential modes: (1) internal reflection; (2) external actions. This theory was put forward on the basis of Dewey, Lewin, and Piaget's experiential learning model. Kolb (2005) indicated that the learning process includes four stages: concrete experience - reflective observation - abstract conceptualization - active experimentation.

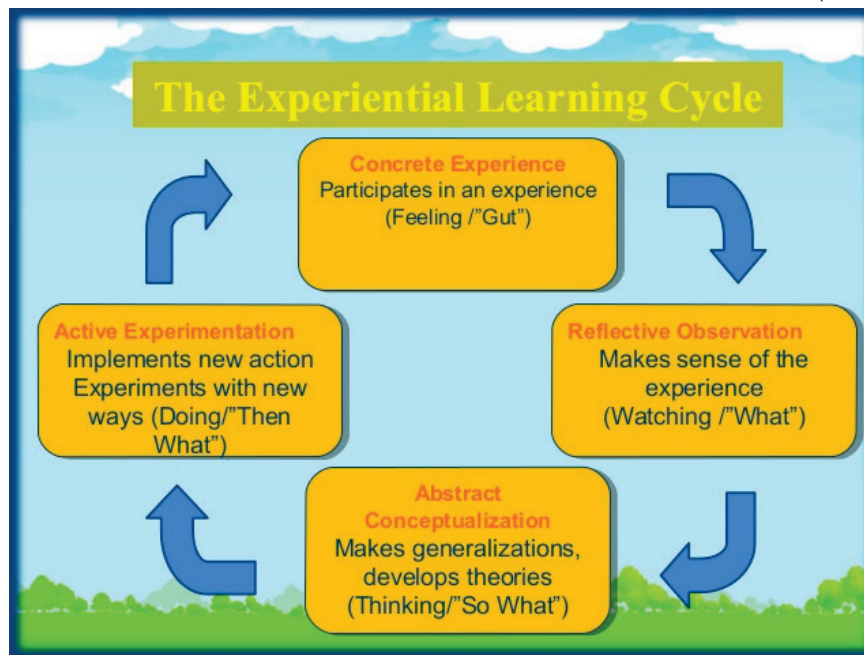


Figure 1 - Experiential Learning Cycle (Kolb, 2005).

The next section will present the expatiation of the tacit knowledge transfer-path model for basic design teaching. This model is used to guide the design process during teaching.

## AERS Model of Tacit Knowledge

### Transfer-Path in Basic Design

#### Education

In basic design education, the core of the tacit knowledge transfer-path model (i.e. the four stages in the learning process of basic design knowledge) is developed based on ELT, namely Action, Experience, Reflective Practice, and Situation, respectively, as shown in Fig. 2.

#### First Stage : Action

According to ELT, the acquisition of knowledge comes first from human experience (Kolb, 1984). In this study, the problem faced by beginners, namely the lack of design knowledge and experience is solved first. Based on literature review, this study adopted the method of “from a crafting” making to help beginners acquire design knowledge and experience through “learning by example”.

Therefore, the first stage of the AERS model is action. In the process of learning handicraft, beginners learn the knowledge of basic design (such as point, line, plane, beauty in form, color principle, etc.), accumulate craft skills, improve their weak tacit knowledge of skills, and gain explicit knowledge of design software.

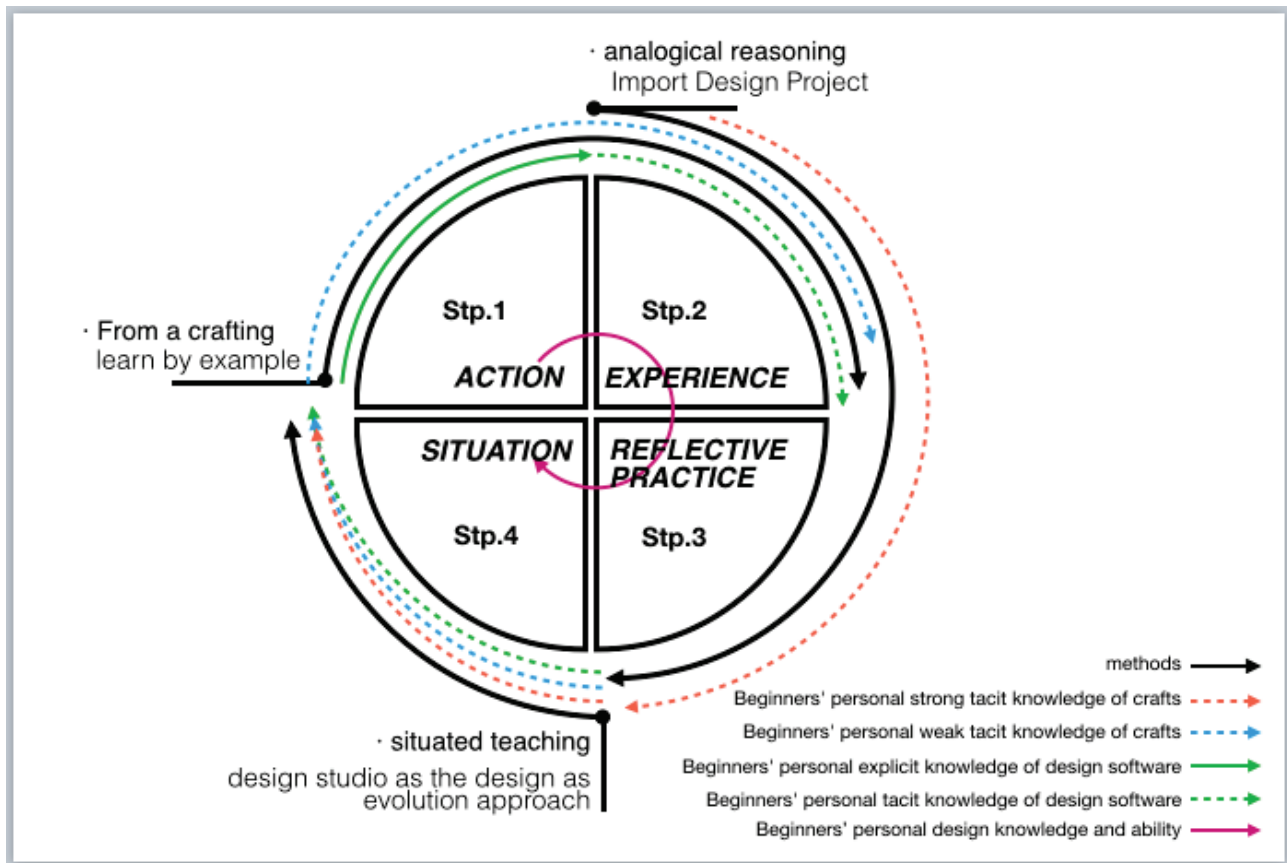


Figure 2 - AERS Model (Source: Authors).

## Second Stage : Experience

While continuing the contents and methods of Stage 1, analogical reasoning behavior is added, and a design project is imported. Analogical reasoning can occur with pictures, words, and sentence clues, especially visual analogy (Chai et al., 2015), to help beginners accumulate design experience. In design teaching, emphasis should be placed on the use of design software to enhance beginners' experience in integrating design software operation with design knowledge (or tacit knowledge of design software).

## Third Stage : Reflective Practice

Stage 3 continues the content and methods of Stage 2. Beginners complete design projects through reflective practice, continue to accumulate knowledge and experience, transform abstract concepts and experiences, and realize the change of tacit knowledge in personal design ability, crafts, etc.

## Fourth Stage : Situation

In view of the dependence of tacit knowledge on

context, the influence of the environment where knowledge receivers are located is extremely important (Simons, 1999). Therefore, the researchers carried out situated teaching in the design studio, and adopted design of practice (procedural instruction), as proposed by Lawson and Dorst (2009). The evolution of design approach activates tacit knowledge transfer among different individuals and improve beginners' design abilities in many ways.

While the four stages all contain the changes of beginners' personal design knowledge, as shown in Fig. 2, due to different teaching methods and strategies, the change varies in different stages. The researchers divided tacit knowledge recognized by beginners into strong and weak tacit knowledge of crafts, and tacit knowledge of design software, and expressed it with dashed lines of different colors. It is hoped that novice design students can go through the four stages and three teaching methods of the AERS model, and realize the tacit knowledge transfer between individuals, the internalization of explicit and tacit knowledge of individuals, thus enhance personal design knowledge and ability.

The description of the AERS model has been shown. Next, this paper elaborates on the teaching activities of basic design courses, as guided by this model, and assess the new strategies proposed in this study.

## Case Study: Basic Design Course

The research selected the freshmen basic design course for the visual communication design major in a university in Guangzhou, China. The design and practice of the teaching contents and processes are guided by the AERS model.

The course lasts for 12 weeks (Total of 72 hours (3 h x two/week)). It is the first professional basic course for freshmen, followed by photography, graphic creativity, layout design, and other courses.

### The Course Objectives

#### Knowledge objectives

To master the basic elements of formal composition, such as point, line, plane, beauty in form, abstract, disembodied forms, and space exercises: where emphasis is placed on plan form and functional considerations; to master the operation skills of PS/AI design software.

#### Ability objectives

To cultivate students' aesthetic ability by using the form ability of point, line, plane, materials, color, and other elements; to guide students to gradually acquire the basic qualities and abilities of designers, such as observation and empathy.

### Teaching Content Planning

According to the course objectives, teaching contents are divided into three parts:

First, design knowledge points. Based on design knowledge points, the past teaching practices, and literature review, this study reviewed the Bauhaus basic design course. It also referred to the three major books on

composition by Asakura Naomi from Japan, and the theory of forms by Pin-chang Lin from Taiwan.

Second, the handicraft skills: Taking the four aspects of 1) maneuverability (Chan, 2015); 2) that the craft process embodies the concept of formal composition, such as "unit" (Uysal & Topaloğlu, 2017; Boucharenc, 2006); 3) that handicraft needs to apply design software in the production stage, which can minimized the integration of software operation and knowledge points; 4) relevance with students' design specialty (Boucharenc, 2006; Smith, 2015; Dorta, Kinayoglu, & Boudhraâ, 2016), as the dimensions of consideration to select the handicraft of paper quilling to integrate into this course.

Third, design software: learning the basic operation of design software PS/AI, such as brush tools, layer tools, and shape combination, etc., meaning students learn to draw graphics with design software.

### Participants

There are 28 freshman students majoring in visual communication design (12 males and 16 females; No.: S1, S2 ... S28) who participated in this course. They all have a certain artistic foundation before entering the college, while completely fresh to design and paper quilling.

The course is jointly undertaken by a design teacher (DT) with 8-years teaching experience and a paper quilling craft teacher (CT) with 3-years teaching experience.

### Teaching Process Design

In order to take the AERS model as the basic framework, we divided to anchor the 12-week course with two phases. The first is craft and soft study, corresponding the action stage of the AERS model, in which students complete a handicraft and software learning.

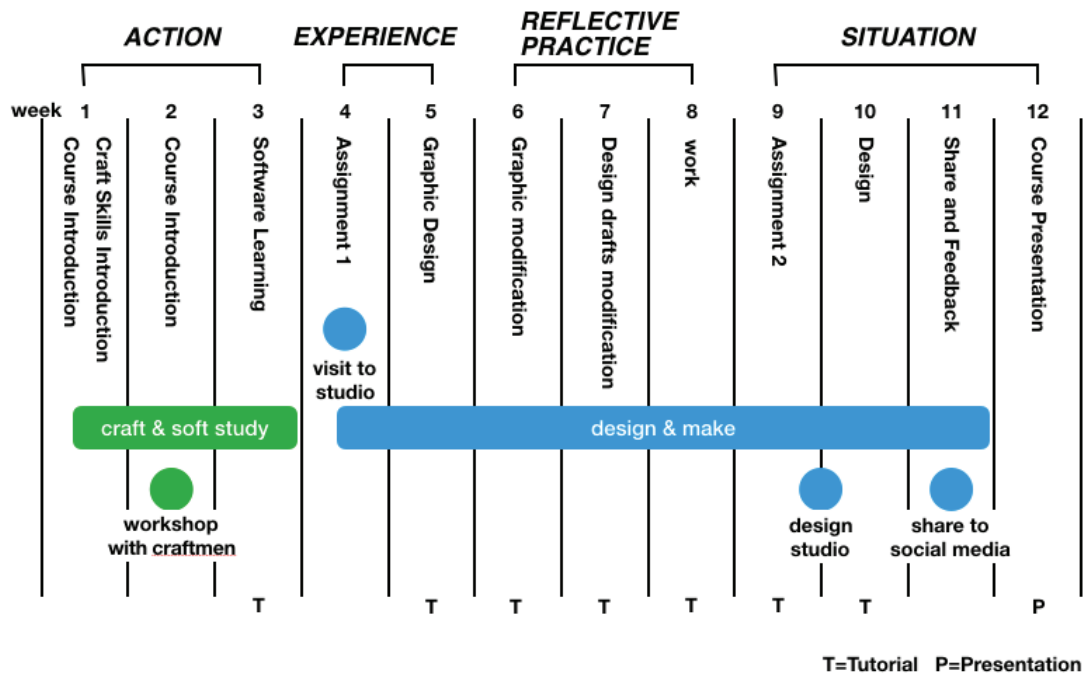


Figure 3 - The 12-week rundown of the course (Source: Authors).

The second is design and make, which runs through the last three stages of the AERS model, in which students complete two related design assignments. These two group assignments involve basic design knowledge (e.g., point, line, plane, abstraction, beauty in form), handicraft knowledge, software operation, design thinking, etc.

After synthesizing the opinions of researchers, DT, and CT, the design assignments were determined, as follows: 1) to design and produce a paper quilling work under the theme of “Salute to the Master”; 2) to design a paper quilling infographic based on the production process of the paper quilling work, share it on handicraft and design social media sites (Baidu paper quilling Tieba), and collect feedback from netizens. Figure 3 shows the 12-week rundown of the course.

## Detailed Description of the Teaching Process

### Craft and soft study

Week 1, DT introduced the relationship between craft and design, including the point, line, plane, etc. of paper quilling works. CT introduced the paper quilling skills.

Week 2, DT shared the experience of designing and shaping in the school's paper quilling workshop, and selected paper quilling works with distinctive design style to explain

beauty in form, points, lines, plane, units, etc. CT demonstrated the skills of paper quilling and arranged students to observe, imitate the operations of craftsmen, and create a learning scene of master and apprentice.

Week 3, DT taught design software, such as PS/AI's pen tool, shape combination tool, color filling, and other basic operations.

In three weeks, through “learning by doing (learning by example)”, developing students' interests in paper quilling, design, and software operations, which enabled them to initially acquire the basic skills of crafts and design software.

### Design and make

Weeks 4-5, DT first introduced the requirements of two group design assignments, like the design theme, and preparations, and then sharing the classic works of Milton Glaser, Stefan Sagmeister, and other designers with the students. DT explained the basic design knowledge involved in the works, interpreted the design ideas of the works, and guided the students to carry out their design project; “Salute to the Master”. During this period, DT led the students visiting the design studio with “Paper Arts” as the theme, continued to introduce the design ideas and processes of the works, and guided the students to learn and use analogical reasoning. The students mainly focused on graphic design at this stage.



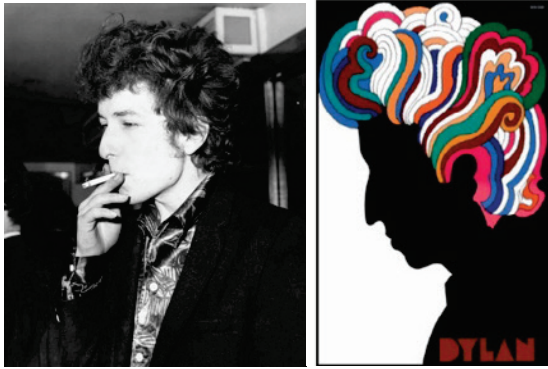


Figure 4 - DT share of the classic works of Milton Glaser.



Figure 5 - CT's demo of paper quilling.



Figure 6 - Student's assignment of Salute to the Master.

Weeks 6-8, DT guided the students to revise their design drafts and electronic drafts. CT further helped the students solving the problems concerning crafts and paper quilling skills, then complete the first assignment.

Weeks 9-12, in design studio teaching, students were divided into five groups with 4-6 persons per group to discuss the plan of their second assignment within the group. DT conducted practical procedural guidance to help

beginners acquire complex, cross-disciplinary knowledge and experience, in order to strengthen their knowledge and experience acquired in the early stage. At the end of Week 10, the students published their works to a social media platform of handicraft (Baidu paper quilling Tieba) to obtain feedback from netizens, and further revise their works. In Week 12, the works were presented, and DT and CT commented together.

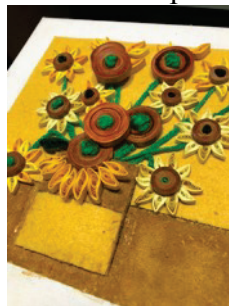


Figure 7 - Presentation of Student's Works.

### Observation and interview

Our observations focused on capturing the time periods in which handicraft or design practice, knowledge and experience were mentioned during teaching, such as, when using handicraft to conduct case studies and when introducing project learning with

emphasis on analogical reasoning. The interactions between students and teachers were recorded, as well as the changes in students' behaviors and language during practice.

Equipped with a pen and a notebook, the main method of documentation was to take detailed field notes and photos (cf. Emerson,

Fretz, & Shaw, 2011). The research processes were described in full sentences from official and informal conversations recorded while observing. With the consent of the participants, taking photos to record some of their special behaviors. During the 12 weeks, our observers (two researchers trained in cultural studies and ethnographic research) conducted participatory observation and recording.

To assess the changes in beginners' tacit knowledge, the researchers randomly asked beginners to explain (a) "what they are doing" and (b) "why they are doing it", then we described, reasoned, and analyzed all their behaviors and ideas (Schindler, 2015), which showed that students are able to clearly and explicitly convey knowledge (Smith, 2001), and helped the researchers distinguish between strong and weak tacit knowledge and explicit knowledge. According to the four modes of knowledge conversion, as proposed by Nonaka (1991), to judge the tacit knowledge transfers between teachers and students, and students to students.

Open coding was used for the ethnographic descriptions (Emerson, Fretz, & Shaw, 2011.). Coding was based on what actually occurred during the teaching process (e.g., four stages, learning environment, interviews, skills, etc.). According to the analytic focus of this study, the next section presents the observations, records, analysis, and discussion of the behavioral changes resulted from the change of beginners' tacit knowledge.

## Results and Discussion:

### The Change of Personal Tacit

### Knowledge and Behavior during the Course

#### Action Stage (Weeks 1-3)

(1) Knowledge conversion between individuals: tacit to tacit, explicit to tacit

Personal tacit knowledge changes: beginners'

weak tacit knowledge in craft changes significantly

According to the observation results, in the process of observation, imitation, and practice, the transfer from tacit to tacit and from explicit to tacit easily occurred between CT and students, while the transfer of tacit knowledge between DT and students was not obvious. Students' weak tacit knowledge which skills, techniques, and the art of paper quilling have been significantly improved. Students' explicit knowledge of designing software has changed significantly, while the changes in their weak tacit knowledge were not obvious.

(2) Difference between the behaviors of learning handicraft skills and designing software skills

Students mainly have a strong interest in learning skills. The observation found that there are differences in behavioral language when learning these two skills:

- S2 to CT

S2: Is here rolled correctly? Why are you feeling so unsmooth after sticking?

CT: Well, you can adjust the paper strip to the shape you need first, like this (CT demonstrating) with a little glue on the paper quilling stripe...

S2: I'll try again. Is this ok?

CT: Maybe less glue.

- S2 to DT

S2: I used pen to make a closed selection, but the color cannot fill in.

DT: Because you have not selected this line (DT demonstrating, pointing out the problem).

S2: OK. (continuing practice).

The above dialogues show that while learning design software, students will not repeatedly confirm whether their behavior is correct or not. When learning handicrafts, students not only need teachers to demonstrate, but they also need to constantly try and think of the skills. We believe that the reason for the difference, is that the instructions when operating the design software belong to explicit knowledge, and the results of

operation can be quickly feedback.

### **Experience (Week 4-5) and Reflective Practice (Week 6-8) Stages**

(1) Knowledge conversion among individuals: tacit to tacit, tacit to explicit.

Personal tacit knowledge changes: beginners' personal strong tacit knowledge changed significantly

In these two stages, DT and CT externalized their knowledge through practical operation or analogical reasoning, and transmitted them to students through the transformation methods, from tacit to tacit knowledge and from tacit to explicit knowledge. Students internalized their knowledge through craft operation, design software operation, skills, and the use of analogical reasoning and example reasoning to improve their creativity and connoisseurship.

For example, CT demonstrated the craft while explaining to students how to modify the works. When DT analyzed students' works, he often said "This is because... I suggest you try to use ... (a certain color, an effect of density contrast, etc.)." All these, together with DT's analysis of the design ideas of the works to the students, all reflect the transfer from tacit to explicit knowledge between teachers and students.

With regard to the change of the tacit knowledge of individuals, we observed that most students' tacit knowledge changed significantly after they became proficient in analogical reasoning and case-based reasoning, especially after reflecting on practice. This discovery confirms Polanyi's view (1958, 1983) that the improvement of tacit knowledge and tacit ability of individuals is not a procedural process, but is affected by individual differences, length of learning time, and other factors.

(2) Students' intuitive action prevailed, and some works showed design fixation.

Beginners are mainly trying and seeking various modification opinions. Students often say, "It feels more suitable to do so", "It does not feel good". "Intuition" and "repeated modification" became their important characteristics at this stage.

There were 11 students (S2-S4, S6, S16-S21, S25) in the Experience Stage who were able to quickly understand design tasks, carry out data collection, draw design sketches, and do other design activities. When the observers asked these 11 students to explain "how to carry out design quickly", their answers were similar. Taking S4 as an example, he said that:

"It depends on intuition and some thoughts about the design theme. This feeling is related to the cases shared by the teachers, personal hobbies, life experience, and my preliminary understanding of the design."

In the reflective practice stage, these 11 students preferred to describe their ideas to DT or CT, and used more case analogy reasoning to revise and perfect their works repeatedly.

The other 17 students (S1, S5, S7-S15, S22-S24, S26-S28) were slow in their progress. In the second course of Week 5, DT took Milton Glaser as an example, and demonstrated how he conceived and designed Assignment 1, how to use visual analogy or the designer's line of reasoning. Then, these students imitated DT's design ideas, and used visual analogy and other methods to carry out design activities. However, design fixation was commonly occurred in these students' design plans, which required increasing design variety.

### **4.3 Situation (Week 9-12)**

(1) Knowledge conversion between individuals: tacit to tacit, tacit to explicit, explicit to tacit

Personal tacit knowledge changes: tacit to explicit, beginners used all kinds of knowledge comprehensively.

Students' interactions with DT and team members increased significantly in the studio environment, and they applied their explicit knowledge as individuals, as formed after reflection and practice of the design activities. The personal tacit and explicit knowledge collide between students and students, and students and teachers, which transformed the knowledge transfer from tacit to tacit, tacit to explicit, and explicit to tacit. This kind of collision can produce a burst of powerful energy, and is also a magical process (Smith, 2001). This is also in line with the way to



overcome the barriers of tacit knowledge transfer, as proposed by Collins (2010), that is, continuous interaction within the collective.

From the students' answers to “what are you doing” and “why are you doing this”, we found that students reduced their “intuitive” vocabulary, and used clear answers and reasoning ideas.

For example, when describing the design idea or process, S20 said that:

“After knowing paper quilling, I really want to become a master of it. My mind was full of all kinds of paper quilling rolls during that time, so I designed a cartoon character with the paper quilling head, which has a rough shape just like me.”

There were many descriptions with reasoning ideas, all reflected the change of students' knowledge types from tacit to explicit knowledge, which means under certain circumstances, students can convert the tacit knowledge of experience and perception into clearly expressed knowledge, and apply it to new design tasks, thus, the knowledge is eventually transferred on a linguistic level. This change also confirms the concept of Schön (1984), as mentioned in the Reflective Practitioner, that after continuous reflection on practice, a part of the tacit knowledge of an individual begins to change into explicit knowledge, or becomes visible through the process of rearranging images.

(2) “Polarization” of students' behaviors and attitudes

Regarding the use of handicraft and design types of social media to collect modification opinions and create the actual needs of the design projects, students' behaviors and attitudes are “polarized”.

For example, S7 said that:

“I would like to share my works in the paper quilling bar, because some people praised and commented on it for me, but it is not helpful to improve my design ability.” S16 said, “I can learn the feedback from the netizens from the comments in the paper quilling bar. I like to interact with the people through the bar, thus further improve my paper quilling works.”

This phenomenon is consistent with Smith (2016) that social media is a “double-

edged sword” for students' learning. However, through observation, we found that the use of social media platforms related to handicrafts can indeed create a situation for students to meet the actual needs of design projects. It is only in assessing whether students' design works have an impact on students' tacit knowledge that remains to be considered.

## Conclusion and Research

### Limitations

Based on the tacit knowledge theory and ELT, this study proposed the AERS model to guide basic design teaching. The case study concluded that design learning is a step-by-step process, and doing handicraft is the threshold. It is indeed helpful for beginners to quickly enter the study of professional design learning, and for individual designs, the tacit knowledge of handicraft and other aspects has undergone significant transfer and change. Then, in the design project practice, analogical or example reasoning is used to accumulate experience and reflect on practice. Finally, in the studio situational teaching, students' comprehensive ability can be exercised, which lays the foundation for the study of design courses, and realizes the change of personal design knowledge and ability. In other words, the change of personal design knowledge and ability cannot be separated from the strong and weak tacit knowledge of personal handicraft, or the change of computer software operation knowledge in the four stages of action, experience, reflective practice, and situation. The change of different types of personal knowledge cannot be separated from the use of teaching methods / strategies, such as “from crafting”, “analogical reasoning”, and “situated teaching”. Therefore, the AERS model proposed in this study, can effectively guide the teaching design of the basic design course, and guide beginners to learn the basic knowledge of design quickly.

Limitations of this study are as follows. Firstly, is the limitation of the case. Although this study provides a new strategy for basic design teaching, and proves the effectiveness of this strategy through practice and

observation, it is still necessary to further discuss how to carry out other education majors in view of the fact that the case only involves one major.

Secondly is the limitation of contextual teaching. Situated teaching is also used in the action stage, such as workshop-based paper quilling teaching. Considering the focus of this study and the cognitive load factors of beginners, we only use the design studio as the main teaching context to observe the changes of beginners' tacit knowledge.

Although there is training to simulate real projects in the situation stage, there is still a lack of feedback from students in the following professional design courses. Therefore, our future study will discuss the issue from different crafts, different professional directions, different teaching situations, and longer-term observations based on this study.

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# Growing Green, Benign by Design: Ecological aspects of Industrial Design (Part 1 of 3)

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The project is an attempt to cover the aspects of production and application of materials from renewable sources, for sustainable product development. The report is divided into three parts describing the role of renewable materials in the past, present and future.

The first chapter, named Chemurgy, places the topic in a historic perspective. The word Chemurgy was introduced in the thirties to describe a branch of chemistry which dealt with the application of natural raw materials, especially from farm products. As a result of agricultural over-production and the advent of the economic depression, American farmers were in search of new outlets for their produce.

Industry (especially the newly created automobile industry) on the other hand, was in great demand of materials. One of the important car manufacturers at the time was Henry Ford. He was a Chemurgist, whose vision it was to grow cars from the soil. His cars included many components from renewable materials, such as gluten or soy plastics and used alcohol for fuel, which was gained from vegetables. Presently, cars in Brazil use alcohol for fuel, extracted from sugar cane.

Two of the most important chemurgic plants were soy and hemp, the latter of which was banned in 1937. The two plants (both originate from Asia) were cultivated on a large scale, primarily for non-food purposes. Many important discoveries had been made, which found wide application still in use today.

The chapter concerned with current development consists of two parts, i.e. renewable materials and sustainable ways of production. The part about renewable materials is divided into five areas of consumer application. Of particular interest to industrial designers are natural fibers and bioplastics. In the area of natural fibers, the PLATO manufacturing process seems a promising development.

The technique upgrades wood or plant fiber to make it more strong, more light-weight and more resistant to rot. Plant fibers which have been treated are finding application in the car industry. Moving on to bioplastics, the first generation of bioplastics, which still contained some synthetic material, has been superseded by a generation which is totally biodegradable. Most bioplastics, which are currently available, are designed to be thermoplastic, to be processed by conventional industrial machinery. A particularly interesting development is the production of a plastic like Biopol (Polyhydroxybutyrate), by plants instead of bacteria.

The second part of this chapter is about methods of production. There is a shift noticeable towards the utilization of transgenic plants or bacteria to produce materials. Biotechnology assists in the improvement of production efficiency and product quality. An example of this is corn and potato which have been modified not to produce amylase, so the process of starch extraction has become easier and cleaner.

The third chapter begins with an assessment of the developments towards sustainability, including economical, technical, social, and ecological aspects.

In the race towards a sustainable future, there are two scenarios, i.e., Aquafication and Prosumerism, put forward for consideration. Presently, agriculture for industrial purposes does hold the promise of sustain ability. However, if it were to be applied on a grand scale, it would pose two major problems in the near future, i.e., a shortage of fresh water and a shortage of land.

There have been successful attempts in transplanting bacterial genes into plants, which enables them to be salt-tolerant. This way, it would be possible to shift agriculture for industrial purposes to sea (aquafication). The plants would be grown on the sea surface and its industry would make use of the natural forces readily available for its energy needs, like wind-, water- and solar power.

Alternatively, in a cocooning society (F. Popcorn), with working at home becoming more common and leisure time increasing, self-sustainability will become a possibility. The prosumer household, (producer/consumer, A. Toffler) will be self-sufficient in all its needs, like consumer goods, food, cosmetics, medicine, fuel, clothing, etc. All these goods will be “grown” through the application of fast-growing plants.

To test the feasibility of this concept I have conducted several experiments. For example, Giant Jersey Cabbages have been grown into shapes, suitable for furniture application. Tree-free furniture from local resources will become a possibility. Similarly, bottle gourds have been grown in moulds which have taken on geometrical shapes for packaging purposes.

Some other experiments have been carried out with “dead” natural materials. One example is that of mussel shells, (a waste material from the seafood industry) which I have applied into building materials. Another example is the fiber of the Loofah gourd which has been compressed into shapes for shock-resistant packaging or other purposes.

**Keywords** – Benign-design, bio-based design, bio-based materials, biodesign, ecological design, green design, green technology, renewable materials, sustainable product development (s.p.d.).

**Relevance to Design Practice** – This research probably has the most relevance in concept stage of product design, in choice of sustainable materials and greener production techniques. But it may also influence the designer’s awareness and responsibility of the impact his product will have on the environment.

## Prologue

Within the area of SPD (sustainable product development), this project is concerned with “benign- design” through the application of materials from renewable sources.

Benign-design implicates sustainability in all stages of the life cycle of a product. This includes its source, its production, its use, and its waste phase. Materials from renewable sources are basically natural materials which have plants or animals as their source. Living organisms reproduce, so provide for a renewable source. These “living” sources can provide raw materials, prefab materials, or complete products, ready for use. The materials from these sources are largely non-toxic in fabrication, use and as waste. Indeed, most of these materials are bio-degradable, compostable, or even edible.

This research is written primarily for industrial designers. It is neither set out to be a dictionary of materials or plants, nor a manual

for green design. The approach of the topic has been from the designer’s standpoint. The project is partly intended to show the reader the multitude of opportunities, materials from renewable sources have to offer.

One aim was to investigate the feasibility of largescale agriculture for industrial purposes and to discover its opportunities. Areas of application not directly related to industrial design, such as clothing, cosmetics and fuel are included to show the possibility of complete self-sustain-ability which is explored in one of the scenarios i.e., Prosumerism. The topic has been placed in a historical, economic, social, technical and an ecological context. Political aspects have been emitted, as they are to temporary effect, mostly. Also, a comparison between of materials from renewable sources and those from non-renewable sources has been avoided.

The project has mainly involved desk research. Some research institutes have been visited and experts in certain fields have been consulted. Some experiments were conducted



involving the application of waste materials, like shells, fiber materials, like loafs and parts of plants, like cabbages and gourds. The project also includes 2 scenarios about future situations concerning sustainable product development.

## 1<sup>st</sup> chapter Chemurgy

### An introduction

One interpretation of the origin of the word Chemurgist is that it is made up from the two words: chemist and metallurgist. Actually, the term “Chemurgy” was introduced by the publication of a book in 1929, by Dr. Hale. Chem originated from an Egyptian word. Ergon came from Greek which meant to put chemistry to work for the farm. The name chemurgy was changed to biochemical engineering in the sixties.

A definition: Chemurgy is a branch of chemistry that deals with the industrial application of organic raw materials, especially from farm products (as in the use of soybean oil for paints and varnishes and of Southern pine for paper pulp). Chemurgy dealt with carbohydrates, which are abundant in organisms, while hydrocarbons are from petrochemical origin. A Chemurgist slogan: “Anything made from Hydrocarbons can be made from Carbohydrates.”

### A brief history

Chemurgy, which started in the beginning of the twentieth century, was an initiative which began in America. After the start of the depression in 1921, farm recovery was slow. Farmers were overproducing food at dump prices. Meantime, industry especially the car industry, moved into high production and demanded a lot of material. A speech by J. Barnes in Chicago in 1924 suggested possibilities of non-food outlets for food surpluses. Already there were many products made from farm products by that time, like pen barrels which were made from casein.

W. McMillen was editor of *Farm & fireside* and published articles about utilization of farm waste products. In 1926 he received \$50,000 from E. Hoover for research in this area. In 1927 W.J. Hale, an industrialist with a PhD in chemistry at the Dow Chemical Company wrote an article for the *Dearborn Independent* in which he predicted that industry would turn to annual crops as a major source of raw material. Mr. Hale and Mr. McMillen met and lectured around the country. In 1928 McMillen met A. Edison (the inventor of the light bulb) and H. Ford (the car manufacturer) in Dearborn and all agreed to promote support to get research underway.

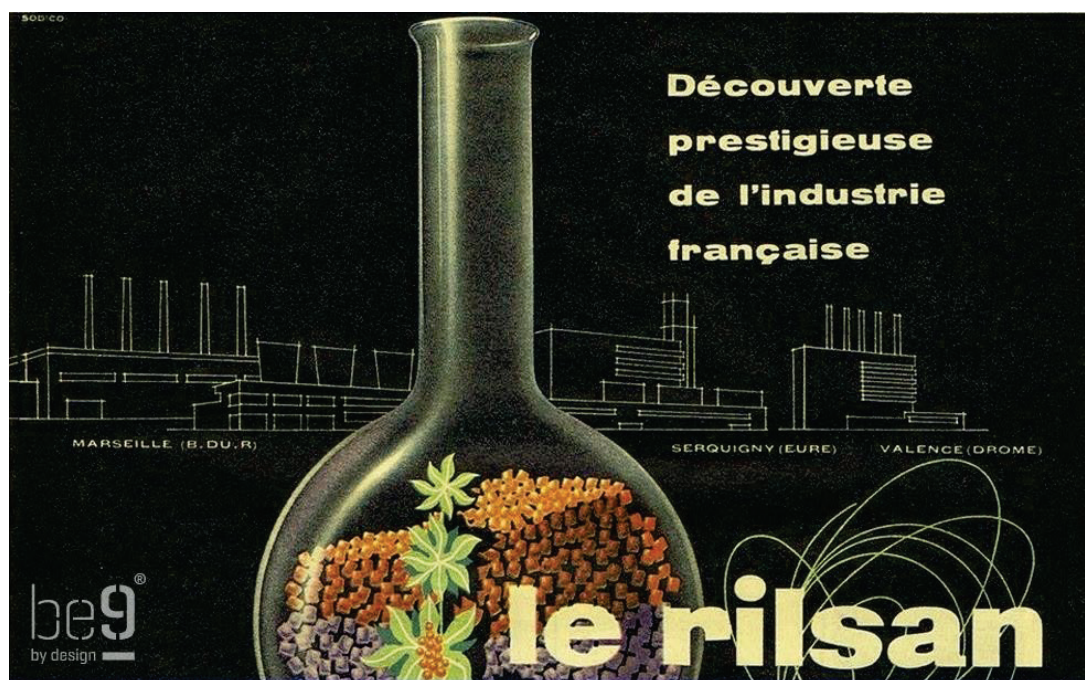


Figure 1 - Polyamide 11 (PA11) developed from Castor oil in 1942 and patented as “Rilsan” by Organico France in 1947. Many products were made with PA11 bioplastic.

In 1929 McMillen wrote a book entitled "Too many farmers" and Dr. Hale wrote book entitled "The Farm Chemurgic". With this book a new word was introduced: "Chemurgy". By 1934 there was not much more achieved. So, in 1935 a conference on agriculture, industry and science was held in Dearborn, at which about three hundred people were present. It was a great success. The foundation, to which P. Garvan was president, changed name

to the Farm Chemurgic Council, to which later the word National was prefixed. The foundation received money from confiscated German patents on chemicals after the war, which was now to be used to finance two initiatives. It was discovered that alcohol could be obtained from corn or other starch crops. The alcohol could be mixed with gasoline. The other project involved making newsprint from slash pine.

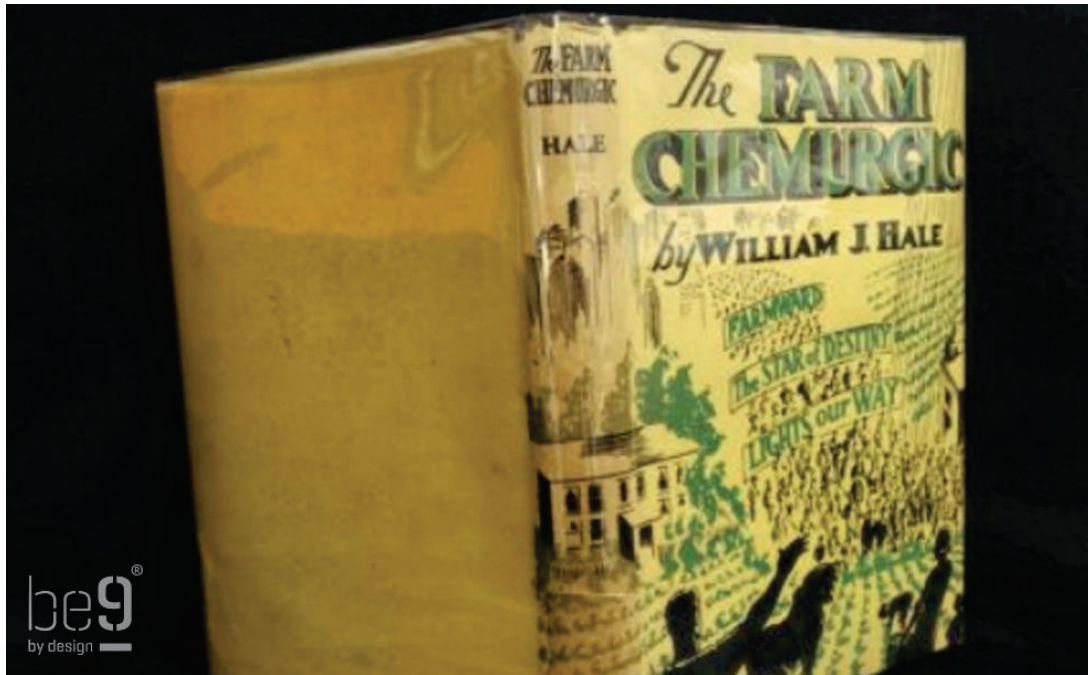


Figure 2 - "The Farm Chemurgic" by W.J. Hale, 1934.

However, politicians and industry, particularly the petroleum industry, were not pleased with these developments and were slowing down any progress. To add to all this, the energetic leader of the Chemurgic movement, P. Garvan, suddenly died in 1937. The Farm Chemurgic Council, of which McMillen was now president had a deficit of \$20,000. McMillen had the task of interesting industry and the politicians again. The latter proved more difficult, as there was a conflict of interest, regarding the policy of that certain

administration. A magazine called the "Chemurgic Digest" was launched.

G.W. Carver was a Chemurgist who developed 118 industrial products from agricultural products, including a rubber substitute and over 500 dyes and pigments, from 28 different plants. In 1927 he invented a process for producing paints and stains from soybeans, for which 3 separate patents were issued.





**Figure 3 - G.W. Carver visiting the Soybean Laboratory, Greenfield Village, 1939.**

### Some Chemurgic plants

Besides farm residue, which was used for industrial purposes, a new development was beginning. Some crops were grown especially for new areas in non-food application, like component parts, consumer products, or fuel.

### Soybean

This oriental wonder bean was introduced to the U.S. in the early part of the nineteenth century. Henry Ford was one of the pioneers in the thirties, to grow soy primarily for non-food application

i.e. his own cars. (see further along this chapter for more information about Ford)



**Figure 4 - Henry Ford in a suit made from Soy-fiber.**

### Hemp

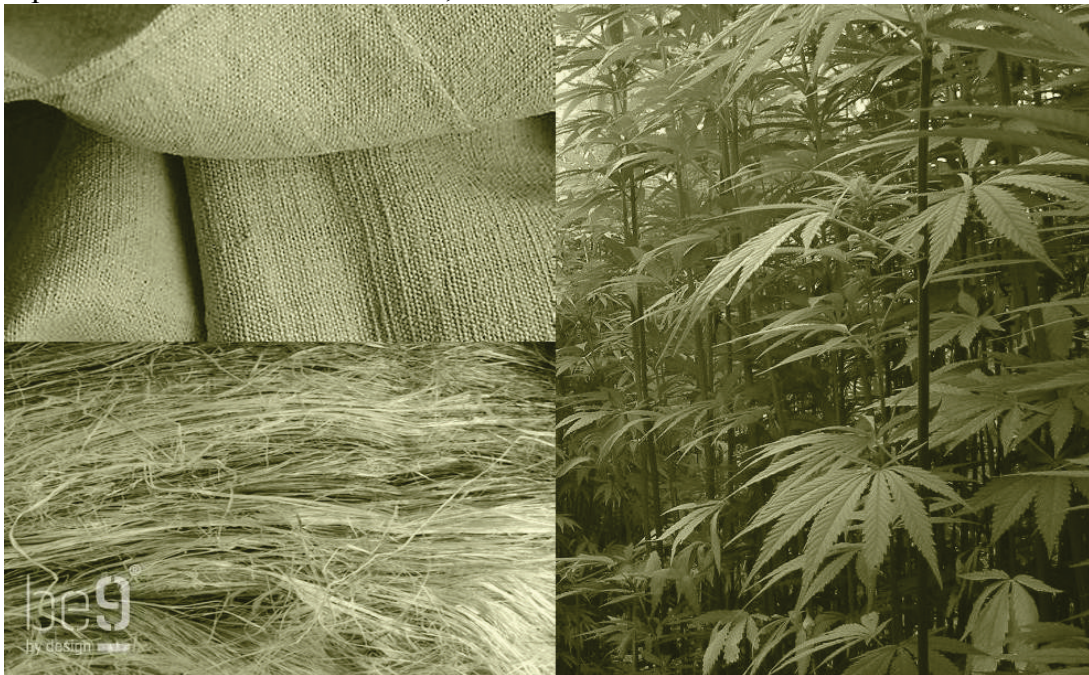
Hemp, which originates from China, is a very versatile plant with thousands of applications.

There was a booming industry. It provided the world with one of the strongest and most durable fibers.



It found application in the production of paper, textiles, and construction materials. Its seed oil was applied in many products such as cosmetics and plastics. However, in 1937 U.S. Congress passed the Marihuana Tax Act, to

prohibit the use of the drug, but in its enforcement the growth of industrial hemp was also forbidden. (for more information about hemp see chapter 2 The home. Agri fibers).



**Figure 5 - Industrial Hemp, fiber, oil, fabrics.**

### Flax

Flax originates from Europe. Around 1936, the company Straus began experiments with flax straw to be applied in cigarette paper. These were successful and by 1939 other paper products were being produced, like writing

paper and even U.S. military currency was printed on this paper. Cigarette paper made from linen rags, was normally imported from France. By the start of the war, soldiers smoked cigarettes, the paper of which was from American flax origin. (for more information about flax see chapter 2 The home. Agri fibers).



**Figure 6 - Flax, linen, linseed oil, Linoleum.**

## Corn

It is a native plant to America. Corn was and still is a major food crop in America. However, it was discovered that its starch could be applied as a non-food material for plastics, paint and soap. (for more information about cornstarch see bioplastics further along this chapter). Corncobs and oat hulls were agricultural residue, which were previously sold for very little as livestock feeds or as fuel for factories. In the early twenties Quaker Oats was researching a new application for oat hulls. Furfural was the final product which found

many successful applications. War required lubricants and soon the demand for furfural exceeded the supply. An alternative was found in corncobs \*1.

## Its products

### Oils

Besides vegetable oils for food, there were also oils which could be of use for industry. Linseed oil from flax and soybean oil became popular in printing ink and paint industry. Castor oil was extensively used for lubrication and hydraulics, during the war.



**Figure 7 - Ricin oil from Castor beans.**

The tung nut was new to America. When pressed, it yields an excellent quality oil, which finds application in the paint and varnish industry.

### Bioplastics

At the start of the twentieth century many bioplastics were in use, such as: cornstarch, soy, (wheat)gluten, casein, whey, gelatin, cellulose, and natural resin-based materials.





**Figure 8 - A Casein based plastic called “Galalith” was discovered in the early 20th century. It was used for buttons and buckles, pens, knitting needles, combs and brushes, handles for knives and umbrellas, piano keys, electrical goods like telephones, and gemstone imitations in Art Deco jewelry.**

### Cornstarch

Starch from corn held some interesting possibilities. Cornstarch already was being applied in non- food products like pharmaceuticals, paint, soap, etc. When dry starch was heated at about 100-250 degrees centigrade for up to 15 to 20 hours a product called “Dextrin” was formed. Dextrin’s proved to be insoluble in alcohol but soluble in water, which wasn’t the case with starch. Dextrin is

sticky, so it was applied as an adhesive in envelopes, stamps, labels, but also in wood veneer glues. Allyn starch was a new product applied as a coating or adhesive, which after heating is not affected by most chemicals. There was a Starch Round Table meeting being held every year, in the Dearborn Inn, from 1940 onwards, supported financially by the Corn Industries Research Foundation. (for more information about starch see chapter 2 Disposables and packaging).

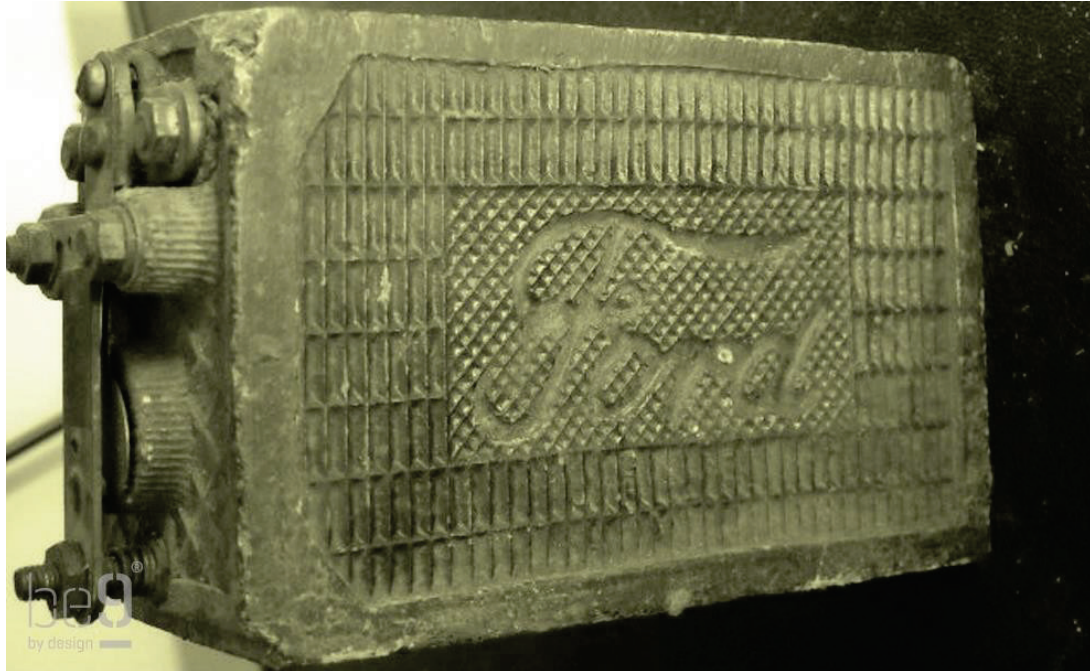


**Figure 9 - Cornstarch bioplastic products.**

### Gluten

Gluten is a non-starch product obtained from corn. It contains about 60-70% protein called Zein, which is chemically inert, soluble in

alcohol and thermoplastic. It was applied as a coating for paper against grease before the war. Ford applied the material in cars as early as 1916.



**Figure 10 - Wheat gluten plastic sides for T-Ford coil 1917-18.**

### Soy

It was discovered that soybean contained a high level of protein and the exceptional property for nitrogen fixation, which made it very suitable for plastics. It contains about 20% oil, which is semi-drying. Around the beginning of the twentieth century there were many discoveries being made concerning soybean. A whole range of applications was the result, including paints and varnishes, waterproof glue for plywood, washable

wallpaper, soap, car parts, linoleum, fire foam, printing ink, etc. Already in 1908 a chemist by the name of I.F. Laucks had produced a waterproof glue suitable for plywood application, gained from soybean oil. But industry was not equipped and could not adapt readily to the new technique needed for this glue. It was not until the mid-twenties, when the car industry began applying plywood in their products, that industry adapted to the new technique replacing cold press machinery for hot press ones.





**Figure 11 - Early car gearshift knobs made from soy-based plastic.**

R. Boyer, working with H. Ford, was the creator of a man-made fiber produced from soybean. It was almost as strong as wool. There was also transparent film for wrapping paper being developed at the Drackett Company laboratory. Often soybean protein was combined with chemicals, to comply with certain demands from industry. In the thirties a

soybean exhibit car was realized by actually making use of component parts produced from soybean. The car conceived by Mr. East, travelled throughout America by rail, promoting these new products. Two hundred thousand people visited the exhibit. The bean was one of the first crops to be intentionally grown for industrial purposes.



**Figure 12 - G.W. Carver holding Soy-fiber.**

### Fibers

Rayon is the foremost chemurgic product among fibers. It's made from cotton linters or wood pulp. Hemp and flax are described above.

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Ramie was called the wonder fiber because of its mostly superior properties. It originated from China. It is moisture, mildew, and bacteria resistant. It is light, unabrasive and

good at holding grease. Other fibers were considered like milkweed stalks, castor bean plant fiber, Sansevieria, Okra and Button weed, etc. but they were never applied in larger production. However, jute was considered but it was imported from Bengal. (for more information about fibers see next chapter the home).

### Fuel

It was discovered that alcohol could be obtained from most plants including farm vegetables. This meant that farmers could be self-sustainable in their fuel needs. Presently, in Brazil cars use alcohol for fuel, obtained from sugar cane. Also, research on seed oil-based fuel seemed worth the effort.

Rudolf Diesel had designed his engine in 1896 for vegetable or seed oil use, due to its superior quality. Nowadays, rapeseed oil is being produced in Europe for environment conscious drivers. (also see chapter 2 Transport for more information).

## Industry

### Ford

Henry Ford supplied the world with affordable cars, enabled by the introduction of the assembly lines. He was aware however of the impact and consequences his mass product would have on the environment. In the depression of the thirties there were agricultural surpluses which were largely wasted. The situation was that farmers were producing too much and industry too little.

### “Hemp mobiles”

Ford’s vision was to build cars from the soil. He grew his own soy for the production of component parts. Hemp and soy were used in parts of the bodywork. The cars, like his tractors, were to use alcohol extracted from local vegetables for fuel. Before W.W. 11 a large part of industry was oriented on natural materials. Glues and plastics were for a large part animal or plant based.



**Figure 13 - Henry Ford testing the strength of a Soy-based boot lid with an axe.**

In 1916 Ford set up a laboratory for mechanical, botanical and chemical research. Agricultural waste products and even household refuse was researched for possible application. Hemp and soybean were researched for use in car parts. The Ford motor company was also experimenting with biomass fuels, including hemp. Ford also set

up a network of farmers, who ensured the availability of the required raw materials. The farmers were ensured of extra income by growing crops like hemp for industry. Ford himself owned a lot of land where he began growing soybean in the thirties. In 1939 he even attended a chemurgy conference dressed in a suit made from soybean fiber. He also



started a network of local town-industries, many of which were water powered, for the manufacture of his car parts. In 1915 the induction coils of his model T were made from a plastic based on wheat gluten. In the thirties there were engine, insulation and interior parts like control knobs made from plastic based on soybean.

In 1937 Ford cars included 1kg of

products based on soybean produced in a special factory. In the forties he introduced a car which had body work panels made from natural materials. The parts like fenders were reinforced by hemp fiber, wheat, or straw combined with soybean plastic. The car used alcohol for fuel, gained from local crops. Ford's tractors already used alcohol from vegetables, which enabled farmers to be self-sustainable.



**Figure 14 - The Hemp fiber and Soy-plastic car in 1941 being half the weight of steel bodied car from that time.**

### Carbohydrates vs. Hydrocarbons

At the start of the nineteenth century in America, agriculture and industry became rivals. Great market opportunities in the area of industrial application seemed to apply to both fields, yet there could only be one winner. Products from fossil fuel are generally hydrocarbons, while products from plants are carbohydrates. The battle was mainly fought between fossil oil and hemp. The opportunities of products from hemp seemed endless.

### General motors / DuPont / Standard Oil

However, a small group of industrialists and some politicians began a campaign against hemp, which led to a prohibition bill by 1937 and the destruction of the domestic American hemp industry. Hearst the newspaper tycoon (with interests in the timber industry) supported the petro-chemical campaign

against hemp, by printing unfavorable articles. General Motors had a major share in the American car market. This ensured a great market for DuPont products, such as paints, plastics and rubber. A. Mellon (the later founder of Gulf Oil) was the major financial backer and politician who held the key to its success.

### Its glory & demise

During W.W.2, chemurgy came to the rescue in several instances. Hemp began to be grown on a large scale, after a five-year ban, because of a fiber shortage. In 1942 the US. Army and the Department of Agriculture launched their "Hemp for Victory" campaign and by 1943 over 100,000 acres were grown. The U.S. Navy used Loofah sponge gourds as filters for their engines, which they bought mainly from Japan. After the bombing of Pearl Harbor, the fruit became a strategic material, which



resulted in America growing its own. Milkweed which normally was a menace as a

weed in agricultural fields, was now being applied in lifejackets.



**Figure 15 - Banned in 1937 a campaign was started encouraging farmers to grow Hemp for the war effort from 1942.**

During the Second World War the Allies were cut off from many natural material supplies such as latex rubber for tires. A synthetic alternative held obvious strategic advantages. The chemurgic movement faded after the war. The ban on hemp was reintroduced after it did its national service. The constant supply of raw materials from natural sources was perhaps less reliable to industry, because of its reliance on seasons and vulnerability to climatic changes. Above all, its materials were not compatible to industry. After the war, fossil oil was in cheap and abundant supply. The petrochemical industry was booming. The possibilities of its materials seemed greater and their exploitation seemed more practical. Its industries were centralized, and its technology promised a new age of synthetics. People were attracted to the novelty of its products and were chasing the American dream.

### **In conclusion**

Chemurgy is a branch of chemistry which deals with the application of natural raw materials, especially from farm products. Basically, because of over-production and the advent of the economic depression, American farmers were in search of new outlets for their produce. Industry

was in great demand for material. One famous Chemurgist was Henry Ford, whose vision it was to grow cars from the soil. Many important discoveries were made by Chemurgists which found application, e.g. alcohol was gained from vegetables to serve as fuel for cars. Presently, in Brazil cars run on alcohol gained from sugar cane. Two of the most important chemurgic plants were soybean and hemp, the latter of which was banned in 1937. After the war, the flourishing chemical industry provided factories its materials, which were more compatible, more fashionable, and cheaper.

In practice, chemurgy held several advantages, i.e.:

- Non-food outlets for surplus food products.
- Farm residue was turned into high-grade non-food products.
- New or other crops were grown for non- food purposes, so easing the pressure on the heavily subsidized cotton and wheat cultivation.
- Self-sustain ability: tractors used alcohol for fuel, gained from vegetables.

- The great demand for material by industry was met.
- Industry obtained materials locally, reducing transportation costs.
- New industries for new products were initialized.
- The source of natural (grown) materials is inexhaustible.

### Remarks

Personally, I was quite surprised to learn that soy- and wheat gluten-based plastics had already been applied in industrial products, in the beginning of the twentieth century. Especially the properties of soybean-based plastics seem to offer many possibilities. I read that the bean contains a very high protein level, and it has an exceptional quality for nitrogen fixation, which makes it a very suitable base for plastics. Its water-proof qualities make it a remarkably interesting substitute for many synthetic plastics. The soybean is America's second largest crop, but also in Asia it still is a major product. Presently, with the reluctance of consumers for buying food products containing genetically engineered soybeans, there are opportunities for application in the non-food area.

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