

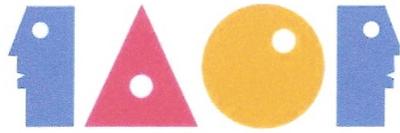
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ADAPTIVE REUSE STRATEGIES FOR HISTORIC OLD SCHOOL  
BUILDING IN TAIWAN: A CASE STUDY OF PKVS

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Abstract

Nowadays, historic old school buildings are being recycled into libraries all over the world. The process of rededication of a building with a former different usage into a library is quite obviously a matter of recycling. The transformation of an existing building with a prior non-library function into a library brings the challenge and the opportunity for sustainable thinking in library planning. As non-renewable resources are decreasing, reusing and recycling are going to become increasingly necessary in the future. The recycling of old buildings means reducing the ecological footprint of library buildings in a cost-effective and efficient way. The planning of an adaptive reuse is a very different task than the planning of a library in a totally new building. This study also analyzes case of reuse of vacant historic old school buildings in Taiwan.

Key Words: historic preservation, old school building, derelict, sustainable, library buildings

Introduction

*Motive and Background of the Study*

Historic old school buildings play an important role in many different cultural heritages and societies. Schools are a fundamental fragment of these societies and service, teach, and assist as get-together places for the native citi-

zens. They are tied to their neighborhood's wisdom of place and personality and when they are unrestrained or destroyed they leave emptiness in that heritage. This study will demonstrate the value of historic old school building to their traditional and architectural heritage, deliberate the effects of their abandonment on their surrounding neighborhoods, and will create approvals for adaptively reusing abandoned historic old school buildings. Historic old school buildings are often evacuated in errand of new construction because of region merging, public strategies, declining appearance, invalid facilities, and poor preservation for the period of use (Hauke & Werne, 2012).

School architecture is often symbolic of an era, during the Japanese Colonial Period; the Japanese built many Japanese style households in Taiwan. The people of these Japanese style households changed after World War II, but they were still used as residential households. Starting in the 1990s, many of these households have been rip to pieces due to undesirability. This has also carried chances for preservation and reuse. Losing a historic old school building generates holes in the landscape of the region and its history. Many of these school buildings have been a major part of their community throughout the mainstream, if not the entirety, of its living memorial (Hauke & Werne, 2012).

Secondly, historic old buildings are being recycled into libraries all over the world. Many buildings have been given a new purpose, such as an old grain silo, a post office, barracks, a

brewery, a factory, a railway station, and a horse stable, to name but a few that were transformed into libraries. Recycling of buildings will become increasingly important in the future (Hauke & Werne, 2012). Conversion and reuse of old buildings with a different former usage into a library means parse a special aspect of sustainability. Revitalization includes elements and features to lessen the building's energy and environmental impact on the planet.

Being green is an element of being sustainable, but sustainability is actually a larger and more holistic concept than being green. A matter of sustainable thinking is the realization of reducing the ecological footprint because of the chance of bringing green aspects into an old building. The proportion of libraries adapted from old buildings when compared to construction of new buildings is likely to remain significant in the future, especially in the developed parts of the world. Previous studies showed the advantages of sustainable thinking by recycling of old buildings into libraries: the aspects of ecology, culture, urban regeneration, finance and corporate identity (Hauke & Werne, 2012).

Moreover, historic old school buildings can be realized as more of a challenge than a chance for reuse. This study seeks to demonstrate that adaptive reuse can provide an innovative resolve for these buildings, even decreasing land use and cost by evading destruction and new construction. Adaptive reuse refers to the procedure of using a building for a different purpose than was initially pro-

posed while retaining most or all of its character defining features.

Ecologists have often assumed adaptive reuse as a cooperation to save a historic building; it is often known as a center between preservation and the comprehensive loss of historic material and assistances to save land, energy, time, and waste. By evaluating, the case study in this study will prove the feasibility of adaptively reusing a historic old school building (Hauke & Werne, 2012).

Finally, Hauke & Werne (2012) stated that libraries, as non-commercial public buildings, are especially suited to provide examples to illustrate the idea of sustainability, to distribute and to disseminate this idea to the people, and to promote civic involvement in sustainability. The Seattle Public Library gave a good example when “the architects and contractors who designed and built the Central Library were committed to constructing a sustainable building that meets the Sustainable Building Policy of the City of Seattle. The purpose of this policy is “ ... to demonstrate the City’s commitment to environmental, economic, and social stewardship, to yield cost savings to the City taxpayers through reduced operating costs, to provide healthy work environments for staff and visitors, and to contribute to the City’s goals of protecting, conserving, and enhancing the region’s environmental resources.”

*Adaptive Reuse Of The Historic Old School Buildings, And Case Study*

As has been understood, when a historic old school building is blacked out, the neighboring community can drop a part of the stories and the identities that define it. Even though the unique function of the historic old school building is disappeared, the building itself remains and can sit vacant for months or years before it is destroyed, decisively or by abandonment. The best adaptive reuse project seeks to revitalize a historic old school building’s tie to the people and preserve the history of the original connection through a novel appropriate function. By placing a similar anchoring component in the invalid that was created by a historic old school building’s loss, an adaptive reuse project can finance in and profit the public. This permits the building to continue to serve the community in a different dimensions and still keep as much of its historic material as possible (Hamilton, 2013).

*Adaptive Reuse.*

If it is clear that a historic old school building can no longer serve in its original capacity, the only alternative to its destruction is to reuse it adaptively. This method, of course, is not without barricades. When working with a historic building it can be difficult to ensure its historic material is retained while still adapting it to an efficient, modern use. The owner may not be able to do so because historic buildings often date from a time when it was not possible to build more than a few stories above ground; the building would not be able to support it. This would be an inconvenience to the owner, who would have to adjust his business plan to accommodate fewer square meters. Nevertheless, buildings

with historic architectural character are often evaluated higher than modern buildings. However, it may be tempted to defeat the building in favor of putting up a larger new one; it may be in the owner best interest to capitalize on the historic nature of the existing building instead (Hamilton, 2013).

The misunderstanding that historic old school buildings are functionally obsolete is a contributing factor to why they sit empty for so long. It is supposed that these buildings “wear out” and become useless, but in truth they do not wear out, they only wear down. Smaller building elements may need to be repaired or replaced over the progress of time, but the structural elements such as ceilings, walls, floors, and foundations may never need more than the infrequent repair. A well constructed historic old school building can last indefinitely with good maintenance and a major renovation every 20 to 30 years.” Additionally, schools built before World War II, or prewar schools such as the ones this study features, are primarily durable with thick walls that today are considered overdesigned in structural capacity.

Due to their construction, they have withstood decades of heavy use and many still require less cost and effort to maintain than new schools that are built with cheaper materials and inferior construction techniques (Hamilton, 2013).

Another commonly held belief is that rehabilitation projects take longer than new construction; the concept of “functional obsolescence,” defined as a

decrease in value due to insufficiencies often caused by age or poor design, is often cited as a reason not to reuse because it apparently makes historic old school buildings ineffective for modern use. A planned use for a building that calls for massive rearrangement of its basic features is not suited to the building and would be reconsidered (Hamilton, 2013).

#### Adapting for Energy Efficiency.

Energy efficiency and environmental impact are also at the forefront of the discussion. While ecologists champion the phrase “the greenest building is one already built,” the other side of the disagreement sees old buildings as inefficient because of their drafty windows and ancient heating and cooling systems. Nevertheless, many historic old school building layouts are well matched to “green” rehabilitation plans. They are typically compact and multistoried, with high ceilings to hide ductwork and large openings that allow in natural daylight (Hamilton, 2013).

#### Financial Assistance.

One of the principal financial benefits of adaptive reuse is the fact that it search for to reuse as much of the original material as possible. Any reuse plan, especially one seeking funding from historic preservation tax credits, will require that the historic structure and character of the building remain undamaged. This reduces destruction, new construction, and new material costs. Unfortunately, this alone is not always enough to make an adaptive reuse plan feasible (Hamilton, 2013).

Funding from local citizens and businesses is necessary to the feasibility of most plans; local preservation organizations, businesses, banks, and private citizens will sometimes offer financial support (Hamilton, 2013).

For a long time the question of adapting buildings to library use was mainly characterized by rejection of the reuse of old buildings and emphasis on the benefits of new buildings: “A librarian must never accept an old building which has previously been used for other purposes.” (Hauke & Werne, 2012).

In 1985, there was a turning point in the librarians’ debate. At the IFLA, conference in Budapest there was a discussion of what conditions must be fulfilled for an old building to be converted into a library and what must be considered when remodeling. This seminar initiated a change in the discussion: “Not all the advantages are evident in every project, but when one considers and contrasts a large number of these reused, converted premises, one can discover a substantial number of differing factors which have definite advantages.” (Hauke & Werne, 2012).

Santi (2007) pointed out the possibilities of reuse, developed a typology of adaptable buildings, and identified the advantages and disadvantages of the conversion and the specific aspects of renovations by different building types. Santi (2007) compiled a list of different conditions, which a reused building should meet. Santi (2007) also pointed out the positive aspects, the symbolic value, meaning for the cultural identity,

the urban situation, the most central location, the architectural heritage, the distinctiveness of the architecture, and acceptance by the population.

Seeliger (2011) gave an overview of the current state of research. In the same volume, the authors presented case studies from Germany, Switzerland and Austria.

### *Case Studies*

Sustainability means also preservation of the cultural heritage, the historical identity of places and buildings, and preservation of the ‘genius loci’. Some examples should illustrate the idea of sustainable revitalization and may draw librarians and architects’ attention to best practice examples of revitalization, and encourage them to look around and find their own ideas for reusable buildings in their own environment (Hauke & Werne, 2012).

The National Pei-kang Agricultural & Industrial Vocational High School is located in Pei-kang Township, Yunlin County, Taiwan. It was built in 1953 and served students’ grade 10 through grade 12. The National Pei-kang Agricultural & Industrial Vocational High School is nearing 75 years old. Years of use and then abandonment of the historic old school building have taken a toll on the physical integrity of some of the structures. In the best condition there will be many major repairs and upgrades needed to stabilize the structures for future viability, in either and to its service to the community or private investment.



Figure 1. The library front  
Data source: the author



Figure 2 Inside the library space  
Data source: the author

The community engagement procedure found the community believes it will lose too much historic, social and economic development value if the County government were to separate from the National Pei-kang Agricultural & Industrial Vocational High School property by defeating it. Steadying the building as a future asset would delay the decision on the ultimate expiration or rehabilitation of the National Pei-kang Agricultural & Industrial Vocational High School old library until a future time. Repairs to stabilize the buildings would not improve the structure enough to allow for use by the County government or an outside occupant, though it could provide alternate use options; even though, delaying capital investment may be attractive, it could be expensive if ultimately if the county maintains ownership. Uncertainty, however, the property is stabilized and maintained by the county while the economic conditions continue to improve; the county could see increased property values. The National Pei-kang Agricul

tural & Industrial Vocational High School committee when considering stabilizing the property must consider the cost estimate. Since the National Pei-kang Agricultural & Industrial Vocational High School property has been a topic of much interest in the past, and action was not taken by Yunlin County, continuing to leave the property in flux, even if stabilized, will likely be met with resistance.

The community engagement process showed most support for reuse of the National Pei-kang Agricultural & Industrial Vocational High School old library in its current location. It was also important that the architectural elements of the building's exterior be well preserved. Upgrades will certainly need to be completed through the interior of the building. If during the process, a historic element of the exterior is substituted. Public exhibition of the original piece would be considered. The committee believes it is in the best interest of the community to select a reuse scenario that

presents Pei-kang Township in a positive manner, and take full advantage of the economic opportunities associated with increased visibility to tourists as well as the local citizens.

#### New Library Proposed Uses.

The project proposes a new PKVS old Library with expanded space and improved facilities. The new library would include two multipurpose lecture rooms. The new library would continue to serve the PKVS adult literacy program, as well as the tutoring and adult instruction, etc (Design, Community & Environment, 2010).

#### Proposed Design.

The proposed project design would be a building with the entire library program accommodated on the ground floor. Figures 3 to 4 show the new library site plan, elevations, and architectural renderings. The building design would incorporate a display feature about the history of PKVS campus with information and images from the 19th and early 20th century. Through archival information and photographs, the display will chronicle the location of the old library, the first in the PKVS campus, and its significance for the PKVS campus neighborhood. The new building would incorporate the stone medallion as a physical artifact located above and east of the existing entrance in a prominent location on the PKVS campus elevation. The stone medallion has a relief of an open book (Design, Community & Environment, 2010). For simulations of the design of this building, see Figures 3 & 4. at the end of this article.

The new building would use fiber cement panels and wood materials for exterior finishing. It would feature glazed storefront windows on the front (south) and back (north) sides. No windows would be located on the west side of the building consistent with PKVS campus. The roof would have skylights (Design, Community & Environment, 2010).

#### Noise Shielding and Air Quality.

The proposed project would feature double-glazed windows along PKVS campus buildings to shield against traffic noise. In addition, the entry vestibule would be designed with noise- absorbing materials. Although the new building would have operable windows for natural ventilation, no operable windows would be located on the south side of the building to mitigate any noise and vehicle exhaust fumes from PKVS campus. Fine mesh screens installed in the operable windows of the building would trap particulate matter. Additionally, the lobby includes two pairs of doors, with the outer doors oriented perpendicular to PKVS campus buildings, to further contain noise and reduce air pollutants (Design, Community & Environment, 2010).

#### Conclusion

The adaptive reuse of old school library of National Pei-kang Agricultural & Industrial Vocational High School would reoccurrence the functionality of a significant cultural landmark and save it from destruction while potentially bringing people back into the overwhelmed neighborhood. It is real that the

adaptive reuse of one building cannot regenerate the entire township of Pei-kang, but preferably, its reuse could lead to a greater movement within the public and neighboring area and act as a catalyst for Pei-kang's stressed economy. Pei-kang was once one of the most important community centers of the county, a railway hub, and a booming financial and religious; its historic regions were home to some of the most important people in the region. It was once full of workshops, auto-repair businesses and

clinics. However, in terms of occupations and enthusiasm, there is not enough here to stop young people from moving to Taiwan's main cities. As a result, the town's population (currently 41,006) has been shrinking and aging since the early 1980s. Though the town needs more than just the reuse of one historic old school building, it could mark the beginning of revitalization in Pei-kang that could reoccur the city to the cultural landmark it once was.

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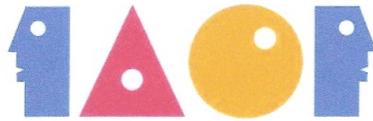
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Figure 3. PKVS's reuse of the old library simulation perspective (©Guo Junpei architects)



Figure 4. internal space simulation diagram B(© Guo Junpei architects)



## CONSTRUCTION ON STUDENTS' AESTHETICS EXPERIENCE SCALE

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### Abstract

Currently, there are a lot of researches on exploring teaching and students' aesthetics in Taiwan but few on evaluating students' aesthetics experience to understand whether curriculum teaching is helpful to students' aesthetics. Hence, this study aims to explore aesthetics experience meaning and develop tools to evaluate students' aesthetics experience to construct the scale. By literature review, it collected dimensions and subjects of students' aesthetics experience scale which were amended by experts and scholars on scale review suggestions, analyzed on exploring elements of pre-test sample. Besides, it went through confirmatory factor analysis by taking 338 graduation topics of students in department of design of universities and colleges as official samples. The students' aesthetics experience scale constructed by this study is in good validity and reliability. The scale contains four aspects and 21 questions, including 6 questions on Pleasant Sensation on Aesthetics, 5 questions on Attitude on Aesthetics, 5 questions on Understanding on Aesthetics and 5 questions on Complete Experience which can be used as reference for scholars in related researches in the future.

**Keyword:** Aesthetics, Aesthetic Experience, Scale Construction.

### Introduction

When we admire art pieces or  
marvel at beautiful objects, we do

this through our own countless personal ties, and because of this we form opinions on beauty as well as gain experiences. These ties come

from a tremendous amount of innate resources that are our own, and our conscious and subconscious produce connections that link our mind with our potential (Richards, 2007; Lin, 2009). Essentially, lines of thought are produced when viewers and aesthetic objects encounter one another. In short, the above kind of experience is an aesthetic experience, which comes from experiences of the conscious and subconscious and is a kind of feedback experience as well (Maquet, 1986). A viewer absorbs and internalizes aesthetic beauty by contemplating what he or she is observing and seeing. This is then converted into one's own aesthetic experience, and it also becomes what unlocks the potential capabilities of the individual's artistic expression(s), learning performance, and creativity. As a result, aesthetic experiences are extremely beneficial to student learning and creativity development (Lin, 2011; Chou, 2011; Chen, 2013; Lin, 2009; Biswas, Jeong, Kinnebrew, Sulcer, & Roscoe, 2010; Lussier, 2010).

Biswaset al. (2010) believe that providing students with a self-directed and open learning environment can bring out students' potential spontaneous capabilities as well as allow students to become ac-

quainted with and understand aesthetic experiences. Through reflection, they will acquire aesthetic experiences, and after they have accumulated and internalized their experiences they will be better able to attain meaning(s) and convictions for their own self-worth. The concept of aesthetic experience is mostly used in educational research. Furthermore, aesthetic experience is also used primarily for exploring classroom education and student learning, and it has been found to benefit student learning. (Girod, Twyman, & Wojcikiewicz, 2010; Hobbs, 2012; Popa & Stan, 2014; Lee, 2015). It is quite easy to see that aesthetic experiences play an important role in student learning.

Although scholars know that aesthetic experiences are very important to children's learning, the majority of research on aesthetic experiences explores the topic in a discursive manner, while there is very little research that inspects and verifies aesthetic experiences. Concerning if students can truly acquire aesthetic experiences through school classes or teacher instruction and how we can know the depth and other results of their aesthetic experiences, Taiwan currently does not have a clear measurement index, and this is a sig-

nificant hole in aesthetic experience research. Therefore, this study believes that before we explore aesthetic experiences, we must first establish a measurement index for aesthetic experiences as well as cultivate students so that aesthetic experiences will have a direct influence on their learning (Lussier, 2010; Richards, 1997; Chou, 2010; Lin, 2011; Chen, 2013; Feng, 2006). As a result of this, students constructing aesthetic experiences are an even more important issue, and so we need to find out how we can further understand if teacher instruction is helpful towards students' aesthetic experiences as well as if students' aesthetic experiences influence their learning results.

## Literature Review

### *Definition For Aesthetic Experience*

Dewey (1934) points out that aesthetic experiences are part of our life experiences, and that they are also direct experiences that we personally experience. However, an aesthetic experience also has its unique aspect, which is that it is a complete experience that is expressed to its pinnacle. This complete experience includes an impression that is very clear, and doing and undergoing are interacting with

one another as well. Furthermore, an aesthetic experience is a feeling(s) that is self-sufficient and complete, it is something that has been realized or brought about, it is the unification of the innate, and it is a mixture of emotions. When the experience is taking place, the individual is immersed in the event, and if one is genuinely concentrating and participating, one's rationality and sensibility will harmonize, creating a type of unified experience. As for after the experience takes place, there is a feeling that is self-sufficient and complete.

Jerome Stolnitz believes that an aesthetic experience occurs when one takes an attitude that is disinterested and sympathetic while paying attention to and concentrating on the object. Edward Bullough has a slightly different opinion, as he advocates, that in order for an aesthetic experience to be attained, the viewer must maintain an appropriate psychological distance from the object; only by freeing oneself from taking a practical attitude can an aesthetic experience be had. Jacques Marquet points out that an aesthetic experience is the moment when the pondering viewer and aesthetic object encounter one another, which is the peak of aesthetic appreciation. In some ways, it is also a kind of feedback experience. A translation by Tatakiewicz

(1980) expresses that aesthetic experience is a type of experience that happens when one is reflecting on or pondering about the object and where the object is not appreciated in an intentional or forced way. Furthermore, this experience can possibly be used in future creative work.

Averill, Stanat, and More (1998) use attributes to explain aesthetic experience. First, they believe that aesthetic experiences are not limited to pleasant or joyful experiences, for it is possible that pleasant and unpleasant emotions are present at the same time. Second, aesthetic experience is also an absorbing state, meaning one is concentrating their attention and has arrived at a realm where they are selfless. Third, an aesthetic experience must be intrinsically motivated, as it does not have a practical purpose. The fourth attribute is it is a challenge. Frida (1986) believes that challenge and mastery can play a role in aesthetic appreciation, and that they can also possibly be used in one's ability to assimilate individual cognition. Or, if aesthetic distance is at a safe aesthetic distance, one, by focused effort, can cope with reality and deal with his/her own emotions.

Seel (2008) points out that aesthetic experience is an intensified form

of aesthetic perception. Aesthetic perception ends at the moment when the viewer notices the person, thing, or object that has appeared, which creates a type of situation where emotions are intensified and diverted. As long as the individual invests his/her emotions, an aesthetic experience can happen at any time. Furthermore, daily life is full of opportunities where aesthetic experiences can be attained. Lin (2009) believes that an aesthetic experience should include the following: it is an experience that makes one happy, an absorbing state, intrinsically motivated, an innate unification where doing and undergoing are interacting, has self-sufficient and complete feeling(s), and it is also an experience that is a challenge. Aesthetic experience is inherently a kind of experience that has feelings and emotions, and while it can include elements of cognition it is not purely cognitive. Hong (2010) points out that in the arts aesthetic experience is primarily about when artists express their beliefs and thoughts through their works of art and then viewers assign meaning to these works. Furthermore, when dialogue and communication with these works of art takes place, an experience where different levels of emotion and cognition are linked together is experienced—this is an aesthetic experience.

After summarizing aesthetic experience explanations provided by the scholars above, this research article has decided to define aesthetic experience as the following: an aesthetic experience is a personally experienced direct experience that occurs when the viewer and aesthetic object encounter one another. A line of thought(s) is brought about by intrinsic motivation, and through contemplation the aesthetic feature(s) is absorbed. Aesthetic experience is a kind of feedback experience while it also is an experience that makes one happy, and it can be created at any time.

#### *Theoretical Viewpoints And Meanings Of Aesthetic Experiences*

Maquet (1986) uses cognitive theory-based viewpoints to explain aesthetic experience, and he believes that aesthetic perception is when the viewer goes to confirm the setting he/she experiences while focusing his/her attention on the image/scene. Using aesthetic viewpoints, the viewer senses the entire scene. Concentration includes all the content and details of the object that are being viewed. But, the interest one has in the object itself is put in the back of one's mind. The situation happening is the viewer is situated in a type

of serene and detached state. Once the scene is in one's mind, concentration will induce a state of silent meditation, and this meditation situation makes the individual feel like they have become united with the object, as if one has turned into the perceived object. This state of detachment and thinking where one is not controlled by objects becomes what one's concentration is interested in. Once the object is concentrated on, meditation begins to take place, and through meditation the aesthetic feature(s) is absorbed. The object, time, space, and the person's body consciousness all completely disappear as the viewer's ego enters the realm of the aesthetic experience (Maquet, 1986). Meditation is therefore an important medium for making aesthetic experiences occur.

Edinger (1968) believes art is the expression of beauty. An image comes from when an archetype's purpose is expressed, our unconscious mind makes all our mental links react, and then they become part of what we express in future works of art (Edinger, 1968; Jung, 1973). Immanuel Kant believes that aesthetic experience is not a kind of cognitive activity, but it also is not simply a type of happy feeling either (Lin, 2009). Lin (2009) summarized

Kant's opinions, writing that primarily the following attributes are present when an aesthetic experience or aesthetic judgment occurs: 1) Satisfaction that is selfless or disinterested, meaning the subject does not care if the aesthetic object really exists or not, as one completely reflects upon form. 2) There is a purposeless purposive form. The meaning of purposeless is that the aesthetic event is free (i.e. free play) and it does not comply with existing concepts. The meaning of purposive form is that the object's form just so happens to agree with the subject's cognitive ability, triggering the imagination and one's ability to understand. This allows us to intuit the aesthetic feature's form, and this results in pleasure. 3) Aesthetic experiences are subjective and inevitable. Although aesthetic experiences are subjective, among people there are *a priori* cognitive values that we all can sense, allowing people to have reasons to anticipate if objects will bring us, as well as other people, pleasure. As a result, aesthetic experiences are inevitable and universal. This empathetic force makes people able to attain happiness from representative thinking, allowing them to communicate and share the aesthetic experiences with others in a widespread fashion.

Maquet believes that aesthetic experience is when the somewhat mentally prepared viewer and alluring aesthetic object encounter one another. This mental preparation involves all the objects that appear before one's eyes, and one must maintain an indifferent attitude so that one does not analyze all that one can see. In addition to this, one also cannot interpret the object in an intellectual or emotional manner (Maquet, 1986). Overall, the defining attributes of aesthetic experience are indifference, non-conceptualism, formality, full participation, inevitability (but subjective in nature), and universality (and there are no rules) (Chou, 2000; Tatakiewicz, 1980). Arthur Schopenhauer adopts Kant's opinions on indifference and formality when he advocates that aesthetic experience is simply reflection or contemplation where the object is not appreciated in an intentional or forced way. We can see that an aesthetic experience is not something that does not undergo change as well as that there is not an original feeling that cannot be changed. Furthermore, we cannot solely appreciate art, as the difference between an art object and other objects is that art objects are able to stimulate aesthetic experiences. Furthermore, this kind of experience will continue to be able to be viewed in the future, allowing one to reflect on it and enjoy it.

When an aesthetic feature is encountered the viewer and object will be combined into one, meaning nothing possesses anything else. For example, the pleasure of looking at the moon will not be diminished because one is sharing the view with others. In fact, it will make the experience even more enjoyable. Also, aesthetic experiences involve the abilities to feel and imagine, and they make people feel free and unfettered. In addition to this, they can mold one's temperament, stimulate innate capabilities, eliminate one-sided thinking, maintain one's ability to innovate and be flexible, and increase one's ability to clearly understand the capabilities of nature and humanity.

Therefore, an aesthetic experience is attained when the individual takes the initiative to absorb himself/herself in the aesthetic object, integrating every type of stimulation and information, which brings about happiness and other feelings. Through reflection, the viewer absorbs and internalizes all the external aesthetic features he or she observes and sees, and this all then transforms into the individual's experience(s). Furthermore, an individual's aesthetic experiences become his/her perception of beauty. After the unconscious and conscious integrate, these experiences become what

unlocks the potential capabilities of an individual's creativity (Dewey, 1981; Lussier, 2010; Richards, 2007; Lin, 2009). For example, a student combines his/her own thoughts with the teacher's explanations or what he/she saw in the art piece(s), and as a result a different or new creative work is produced by the student.

After summarizing work on aesthetic experience, Fenner (2003) came up with five criteria for determining the meanings of aesthetic experiences: 1) *Object directness* means that the individual is willingly accepting guidance by phenomena that are in a field that is perceptual or intentional. Due to object directness, the individual's attention is placed on the phenomenon, and this all makes the individual happy, as he or she feels things are working or will work out. 2) The concept of *felt freedom* involves concerns of the past that have dominated us, and the sense of release from this causes us to feel relaxed, like we are in a sense of harmony. We now have the feeling that we are able to freely choose. Because one is able to break away from his/her own preferences and desires, the heart attains freedom. As a result, one is able to perceive beauty that he/she has never seen before, and, therefore, one's heart

becomes delighted. 3) The *detached affect* is when one emotionally maintains a little bit of distance from the goals he/she is interested in. So, even if we have encountered dark or terrifying situations and we can clearly sense their presence, these dark and terrifying situations will not cause us to feel oppressed, as we realize our ability far exceeds their own. For example, if a person on a boat traveling across an ocean encounters a heavy fog, he or she temporarily will not think about how it will slow down the trip or anything else practical, like being uncomfortable or in danger, because one would focus his or her attention on looking at this natural phenomenon, enjoying this light haze of smoke that looks like a veil while it enshrouds the still and silent seawater. This kind of experience creates an appropriate distance between the ocean fog and real life. Quite simply, taking an objective attitude when appreciating something is an aesthetic attitude. 4) *Active discovery* is when the individual actively accepts the challenge of trying to make potentially conflicting stimuli cohere. It also is about discovering connections between concepts and meaning, and a feeling of intelligibility and a state of happiness is brought about as well. 5) *Wholeness* is when one feels like he/she

has integrated as a person. The individual once was being affected by distracting and disrupting influences (such as self-acceptance and self-expansion), but now the individual has been restored to having feelings that are whole (i.e. wholeness). Later on, a kind of corresponding contentment takes place.

Based on the definitions as well as theoretical viewpoints and meanings for aesthetic experiences provided by the aforementioned scholars, we can find that aesthetic experience should include the following meanings (or properties): active, unifying, perception, having a feeling of happiness, complex, and complete. Furthermore, aesthetic experiences can initiate an individual's innate capabilities and creativity (Dewey, 1981; Fenner, 2003; Lussier, 2010; Lin, 2009; Yang, 2009). Eisner (2002) points out that as long as the core values of school education change somewhat then aesthetic experience will possibly be put into practice in school education. These changes include giving more emphasis to investigation (or exploration) instead of discovery, cherishing the value of amazement instead of controlling things so that they will not change, and placing more focus on students concentrating on the appearance of special and unique characteristics and

allowing students to stand out from the crowd instead of supervising them so that they are repressed and homogenous. Furthermore, metaphoric language should be used more frequently instead of only explaining the literal meanings of words, there needs to be more focus on the process of change instead of only focusing on the existing state (of affairs), and give more emphasis to imagination, values, and the feelings and experiences of a journey instead of facts, measurements, and how quickly one arrived at the destination. Eisner (2002) also believes that the most appropriate place for teaching art is in schools. But, if we turn art education into a tool used for other purposes then we without a doubt will weaken art experiences, because an educational atmosphere is brimming with moments that are brief, bounded, make it hard to evoke creativity, absolutely not continuous, and predictable—making it very difficult to have aesthetic experiences (Kerdeman, 2005).

In the last few years, scholars have incorporated aesthetic experience into educational research, finding that aesthetic experiences are helpful for a student's creativity, imagination, and open-minded thinking. Furthermore, aesthetic experiences are also beneficial when it comes to learning results

(Eisner, 2002; Lussier, 2010; Lin, 2009; Lin, 2001; Chou, 2010; Chen, 2013; Feng, 2006).

Concerning aesthetic experiences being used in curriculum construction (or curriculum development), Lin (2009) uses aesthetic experience to explore how a curriculum's aesthetic components are developed. Lin also mentions her own revelations that will help with building a curriculum for aesthetics, which include the following: students are the subject of exploration, teachers should be adept at self-reflection and personal mastery as well as be familiar with different types of art mediums, curriculum goals should be very flexible and accommodating, the content of educational materials must be able to stimulate the imagination, learning activities should be arranged like a stage play's plot, the learning environment should be contextualized and be integrated with living circumstances, and curriculum evaluations should be like art criticism so that qualitative assessments are emphasized. Scholars also believe that appropriate classroom education and educational activities will make students be able to attain aesthetic experiences as well as cultivate their creativity, competitiveness, and

make them better citizens (Lussier, 2010; Chou, 2010; Feng, 2006). Therefore, concerning aesthetic experiences, the ability to understand, imagination, and classroom education are all beneficial for students' learning results and creative expression.

### Research Subjects and Sampling

#### *Preliminary Sampling*

This study first conducted a preliminary (or pilot) questionnaire. This study's scale for the aesthetic experiences of students is self-made, so we carried out exploratory factor analysis and reliability analysis. Convenience sampling served as the pre-test sampling method; 100 students studying design that were taking a seminar course filled out the questionnaires, and there were 97 valid questionnaires.

#### *Official Sampling*

Taiwan's Ministry of Education has standards used to classify the disciplines of institutes of higher education. These standards were used, and design disciplines part of the arts and humanities made up the majority of research subjects. After eliminating institutions that are no

longer recruiting bachelor's degree students or do not presently have bachelor's degree students, there were 82 institutions and 159 departments that met our subject standards, which includes the following departments: Department of Fashion Design, Department of Creative Design, Department of Digital Game and Animation Design, and Department of Cultural Creativity and Digital Media Design (Ministry of Education of TAIWAN, Department of Statistics, 2014).

50 departments were obtained through stratified purposive sampling, and based on ratios for universities per region, 19 of these 50 departments are from northern Taiwan, 14 departments are from central Taiwan, and 17 departments are from southern Taiwan. One seminar instructor from every department was selected, and they were asked to have their seminar students fill out the questionnaires. A total of 352 questionnaires were handed out, and after they were collected confirmatory factor analysis (CFA) was carried out in order to test the scale's composite reliability, discriminant validity (or divergent validity), and convergent validity. In addition to this, the Scale of Students' Aesthetic Experiences (SSAE) was developed.

### *Sampling Distribution Of This Study*

As for the collection of this study's official questionnaire, 344 questionnaires were collected and 338 of them were valid. Sampling distribution figures are as follows: there were 95 men and 243 women; the largest grade level was the 232 seniors (i.e. fourth year students), 61 juniors, and 45 sophomores (sophomore students include students in their fifth year of a five-year junior college); the largest population group was the 120 students that lived in northern Taiwan, 106 were from central Taiwan, 102 were from southern Taiwan, and 10 were from eastern Taiwan; the top competitive experience that the students participated in was 130 students whom participated in national competitions (which was the biggest group), 97 were in intra-school competitions, 57 were in international competitions, 33 had no competitive experience, and 21 were in inter-school or extracurricular competitions; concerning awards won, the largest group of students was the 140 students that had the experience of getting a place that was fourth or lower, 70 had won first place, 56 had never placed, 40 had won second place, and 32 had won third place.

### *Development and Testing of Scale*

#### *Compiling And Evaluating The Scale*

First, relevant past research on aesthetic experience was organized according to important facets and items, and then a preliminary aesthetic experience scale was proposed. Based on accepted questionnaire evaluation methods, the draft of the Scale of Students' Aesthetic Experiences (SSAE) was evaluated by experts, and the experts' opinions were then used to revise the scale. After undergoing revision, there was a pre-test for the SSAE so that important factors could be extracted. The way the SSAE was compiled can be found below:

The draft of this study's SSAE for the most part consulted Yeh's (2014) Inventory for College Students' Everyday Aesthetic Experience in Designed Products and Feng's (2006) Aesthetic Conservation and Experience Scale, which both served as the concepts and foundational framework for this study's scale. Furthermore, definitions, explanations, meanings, and relevant research on aesthetic experience by Maquet(1986), Kant, Schopenhauer, Averill et al. (1998),

Banks(2007), Dewey (1981), Fenner (2003), Frijda (1986), Lussier (2010), Seel (2008), Tomlin (2008), Lin (2009), Hong (2010), and Yang (2009) were incorporated into the SSAE, which features four important facets and 21 items (i.e. questions) for students' aesthetic experiences. The facets and items are as follows: six questions on *pleasure experienced in beauty*, five questions on *harmonious attitude*, six questions on *understanding of beauty*, and four questions on *potential experiences*.

#### *Evaluation Of Preliminary Scale*

According to questionnaire evaluation standards, an evaluation of the preliminary version of the SSAE was done by 9 experts whom are in fields related to aesthetics and education. Revisions to the scale considered recommendations made by the scholars after they had evaluated the appropriateness of the scale's facets and items. The last part of the revision process involved organizing the experts' recommendations and then using these ideas to revise the SSAE's preliminary scale. The revised version of the SSAE had the following four facets: pleasure experienced in beauty, aesthetic attitude, understanding of beauty, and complete experiences. Furthermore,

the facet for complete experiences had one question added to it, bringing the scale's total questions to 22.

#### *Scale Pre-test*

This study's researchers first analyzed the items in order to know the quality of the preliminary scale's questions, and this was based on judgment criteria for item analysis and criterion methods of internal consistency for questions. This was done in order to try to obtain critical ratio (CR) values that reach the significance level of 0.05 for every item. As for the questions' correlation analysis, the correlation coefficient ranged between 0.535 and 0.748, which exceeded 0.30. Therefore, the level of significance for all items exceeds the 0.05 standard, meaning all the scale's items were kept.

Exploratory factor analysis was used to analyze construct validity, and the KMO value was 0.883, so it could be divided into four factors. Total variance explained was 60.875%, yet Question #12's factor loading was less than 0.5, so it was eliminated. A second round of factor analysis revealed a KMO value of 0.865, so it could be divided into four factors. Total variance explained was 61.408% and factor

loading exceeded 0.5 for all questions.

Reliability analysis was carried out on different facets that were separated by exploratory factor analysis. The Cronbach's  $\alpha$  value exceeded 0.8 (which meets the standard) for pleasure experienced in beauty, aesthetic attitude, understanding of beauty, and complete experiences (Cuieford, 1965). Therefore, the facets for this study's SSAE are as follows: six questions for pleasure experienced in beauty, five questions for aesthetic attitude, five questions for understanding of beauty, and five questions for complete experiences. Once it was completed, the official questionnaire was handed out.

#### *Confirmatory Factor Analysis Of SSAE*

Confirmatory factor analysis was performed after the official questionnaires were collected. The scale's  $\chi^2$  value was 1454.19, which reached the level of significance. Although the SRMR of 0.06 was not lower than the strict standard of 0.05, the study's researchers determined the value was acceptable (Hu and Bentler, 1999). As for the incremental goodness of fit indices, NFI was 0.92, NNFI was 0.92,

CFI was 0.93, IFI was 0.93, and the RFI was 0.91—all these figures exceeded the standard of 0.90, which shows that the conceptual model developed in this study and observation data for overall goodness of fit for the most part meet ideal standards. PNFI (Parsimonious Normed Fit Index) and PGFI (Parsimony Goodness-of-Fit Index) served as the reduced goodness of fit index. Values obtained for PNFI (0.81) and PGFI (0.60) exceeded the standard of 0.50. This shows that this study's theoretical model and observation data have favorable goodness of fit results.

As for basic goodness of fit, we can see in Figure 1 that the scale's measurement errors for the observed variables ranged from 0.16 to 0.57, a negative error variance did not occur, and all values exceeded the 0.05 level of significance. Secondly, factor loadings ranged from 0.66 to 0.92, which is higher than the 0.45 value proposed by Bentler and Wu (1993), level of significance ( $p < .01$ ), and they have convergent validity as well. Overall, concerning the model's basic goodness of fit, the theoretical model meets goodness of fit standards.

Concerning goodness of fit for the model's internal structure, all factor loading estimates reached levels of

significance. The t-values ranged from 11.54 to 23.98 ( $p < .05$ ), which meets the evaluation standards for Suggested Levels of Significance for Factor Loadings. By looking at testing results for the model's internal quality found in Table 1, we find that the reliability of individual items for the measurement index (which is squared multiple correlation) mostly exceeded the 0.20 value proposed by Bentler and Wu (1993). The 21 items belonging to the measurement index of this study's scale ranged from 0.16 to 0.57. Results show that one item's reliability did not meet the standard of 0.20, although it was very close. Furthermore, composite reliability (CR) values for latent variables was 0.941 for pleasure experienced in beauty, 0.869 for aesthetic attitude, 0.931 for understanding of beauty, and 0.910 for complete experiences—all exceeded the evaluation standard of 0.60. Average variance extracted (AVE) figures were 0.853 for pleasure experienced in beauty, 0.752 for aesthetic attitude, 0.854 for understanding of beauty, and 0.818 for complete experiences—all these figures exceeded the 0.50 evaluation standard. The overall CR value for the (aesthetic experience) latent variables as a whole was 0.892 and the AVE was 0.820—both meet the standards (please refer to Table 1).

Discriminate validity was tested as well, and the AVE figures for different aesthetic experience constructs exceeded the square of the correlation coefficients for constructs, meaning these constructs have discriminate validity (Hair, Anderson, Tatham, & Black, 1998). These figures reveal that SSAE figures have composite reliability, convergent validity, and discriminate validity. The advanced CFA model for students' aesthetic experiences can be found in Figure 1.

### Conclusion and Suggestions

This study's Scale of Students' Aesthetic Experiences (SSAE) includes the following four facets: six questions on *pleasure experienced in beauty*, five questions on *aesthetic attitude*, five questions on *understanding of beauty*, and five questions on *complete experiences*, which makes a total of 21 questions. Explanations for the facets can be found below:

- 1) Pleasure experienced in beauty: This facet means the feeling of happiness that occurs when one is affected by a beautiful object's directness or when one actively discovers a beautiful object.
- 2) Aesthetic attitude: This facet refers to when an individual is open to experiencing a diversity of objects

Table 1. Testing Results for Model's Internal Quality

Variable	Parameter estimation for standardized factor loading values	Reliability for individual items	Composite reliability of latent variables	AVE of latent variables
Pleasure in beauty	.80	.35	.892	.820
Aesthetic attitude	.85	.27		
Understanding of beauty	.78	.40		
Complete experiences	.85	.28		
Pleasure in beauty				
A1	.87	.25	.941	.853
A2	.81	.34		
A3	.81	.35		
A4	.92	.16		
A5	.86	.26		
A6	.85	.28		
Aesthetic attitude				
A7	.66	.57	.869	.752
A8	.77	.40		
A9	.79	.37		
A10	.81	.34		
A11	.73	.46		
Understanding of beauty				
A12	.84	.30	.931	.854
A13	.89	.21		
A14	.87	.24		
A15	.86	.26		
A16	.81	.35		
Complete experiences				
A17	.79	.37	.910	.818
A18	.85	.29		
A19	.88	.23		
A20	.76	.42		
A21	.81	.34		

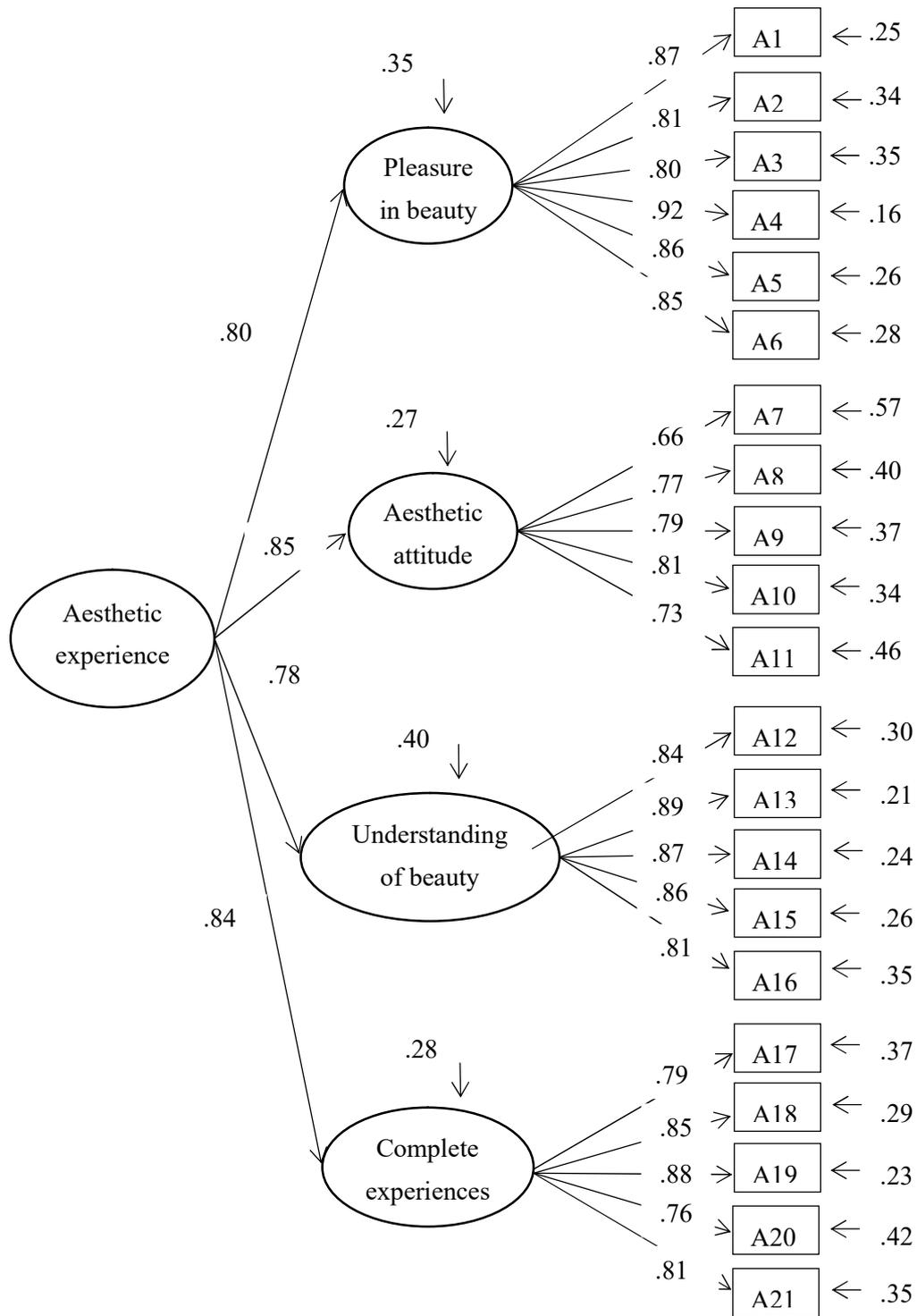


Figure 1. Advanced CFA Model for SSAE

and ways of thinking, regardless if they are good or bad, beautiful or ugly. From these objects and ways of thinking, one is able to find aspects of beauty or an attitude based on good values.

3) Understanding of beauty: This facet concerns one's ability to intuit and analyze beautiful objects. When we think or feel that certain objects are beautiful, we will want to know about and understand them thoroughly. Furthermore, other people will not see certain objects as beautiful, but when one feels those things are actually beautiful he/she will want to explore the origins of beauty.

4) Complete experiences: This facet is about when one shares beautiful experiences with others and will then recall past experiences when he/she encountered beautiful objects.

If we consider the SSAE that was developed for this study, we will find that aesthetic experience is more than merely seeing an object's exterior, as the viewing process should include more aspects as well as the ways of thinking and concepts these aspects are expressing. Therefore, we can attain experiences through looking at objects we like, but we can also attain beautiful experiences by looking at objects we dislike or objects that are not good. For example,

if we encounter a predicament, by seeking to understand the predicament we can obtain happiness, and this happiness is both a beautiful experience and an aesthetic experience as well. Furthermore, if we can have an accepting and inclusive attitude towards different ways of thinking and objects, we will be able to attain beautiful and happy experiences through encountering these different ways of thinking and objects. This is because we will want to understand, concentrate on, or imagine these objects that make people happy.

Through this process of reflection, we absorb and assimilate these objects, and then deep impressions are formed. Or, we will integrate this new experience(s) with past experiences as well as produce feedback, and as a result this all becomes a new experience(s) and creates potential capabilities. Furthermore, these capabilities and experiences are very likely to appear when we need them. Because of this, aesthetic experiences can help students with their learning and creative works, and they can also cause students to have more diverse opinions and ways of thinking as well as better perspectives.

This study's suggestions for future research and education con-

cerning the aesthetic experiences of students are as follows:

- 1) The SSAE can be used for students of different university departments and educational levels so that the scale's results can be verified and compared.
- 2) The SSAE can be used as an index that allows us to look at the aesthetic experiences of students attending institutes of higher education.
- 3) The SSAE can be used as a measurement tool for future research related to aesthetic experience.
- 4) There needs to be more development and revision of the SSAE.
- 5) Aesthetic experience should not just be limited to beautiful exteriors. Instead, our intuition of and feelings toward the object and what opinions and concepts this object seeks to express as well as the process of experiencing different thoughts and opinions should be included, as they too are ways of obtaining aesthetic experiences.

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THE EFFECTS OF COMMUNICATION ON SMOKING CESSATION  
MESSAGE FRAMING FOR PATIENTS WITH  
HEAD AND NECK CANCER

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Abstract

The prevalence of head and neck cancer is increasing annually and it is one of the top causes of cancer death in men. Continued smoking among cancer patients reduces the effectiveness of treatment. We tried to understand which message framing strategies would be effective in communicating concepts involving smoking succession to cancer patients with varying disease stages and fear responses toward these messages. This study used a between-subject experiment involving male patients with head and neck cancer and randomly distributed two different experimental questionnaires. There was a total of 119 valid questionnaires with 61 positively framed and 58 negatively framed messages. The results showed whether framing of positive or negative messages significantly influenced the effectiveness of communication with cancer patients. Positive message framing was better than the negative one. In terms of the influence of fear, those with lower a level of fear were more accepting of the messages. Negative message framing had the highest idea acceptance among patients in earlier stages of the disease with higher fear. But patients in later stages of disease had the highest idea acceptance with positive message framing.

Keywords: Social Marketing Communication, Smoking Cessation, Message Framing, Fear Appeal, Cancer

## Introduction

More than 500,000 people around the world are diagnosed with head and neck cancer each year. In Taiwan, the prevalence of head and neck cancer has increased annually and it is one of the top causes of cancer death among men. The primary risk factors are smoking, chewing betel nut, and excessive drinking (Lin & Ko, 2008).

Since the new cases of cancer are increasing each year in the United States (National Research Council, 2013), cancer centers continuously advertise their services to the cancer therapy market (Gray and Abel, 2012). The advertising of cancer therapy usually used emotional appeals that evoke patients' hope and fear (Vater, Donohue, Arnold, White, Chu, and Schenker, 2014). Nonetheless very few researches compare the positive-framed (hope) and negative-framed (fear) appealing effects for the cancer therapy market.

The fear appeal is one of the most common strategies used to convey health advocacy messages. In recent years, statistical analyses from studies on fear appeals have indicated that stronger fear appeals wherein messages arouse greater fear or anxiety in audiences result in greater attitude changes (Boster & Mongeau, 1984). In this study, we examined the degree of fear perceived by cancer patients in response to suggestions provided in health education messages to understand the influence of fear on patients' reactions to smoking cessation messages. We did this to help patients quit smoking as soon as possible after the cancer diagnosis, to assist them in avoiding relapse, and to provide the most appropriate health education to achieve effective

smoking cessation advocacy. Additionally, we also sought to understand the fear responses of cancer patients in different disease stages and toward messages to determine which message framing strategies result in smoking cessation.

## Literature Review

Message framing is a form of manipulation frequently seen in advertising. It is also referred to as the positivity and negativity of messages. Message framing can be positive or negative to convey an attribute, matter, or feature. In other words, it is the positivity or negativity of the messages used to communicate or change a behavior. Positive messages emphasize the benefits of using a product on consumers. Negative messages stress the disadvantages pose to consumers for not selecting a product (Meyerowitz & Chaiken, 1987; Maheswaran & Meyers-Levy, 1990; Zhang & Buda, 1999). Kahneman and Tversky proposed the prospect theory in 1979. They stated that unpleasant feelings of consumers when they encounter loss are greater than the pleasant feelings of acquisition. Therefore, when people evaluate their situations, different presenting messages (positive messages or negative messages) influence the decision-making process. Lin (1991) indicated that positive message framing has a better advertising effectiveness when subjects approve of advertising. Luo (2004) argued that when information is consistent, positive information arouses purchasing intentions more than negative information does. In addition, studies on the communication of smoking cessation messages have indicated that audience acceptance of positive information under various message frameworks is significantly higher than

that of negative message framing (Lee, 2010).

When patients suffer from cancer, the threat of death is higher. However, patients have varying condition differs and treatment effectiveness is not the same for all patients due to different psychological and emotional reactions. As cancer progresses, certain factors alter patients' health and influence the quality of life and their attitude (Lindblad, Ring, & Glimelius, 2002). The survival rate of patients with early-stage cancer is approximately 80% to 90%, considerably higher than patients with late-stage cancer. This is because the survival rate of patients undergoing early-stage cancer treatment is high. Patients generally change their lifestyles and health attitudes to improve their physical conditions after the treatment process because they fear potential recurrence. For example, they change their diets, adjust their lifestyles, think positively, and seek health information to educate themselves (Shyy & Tsai, 1998). In contrast, the survival rate of patients with late-stage cancer is approximately 10% to 40%. Survival rates are lower and are followed by a number of uncomfortable symptoms, such as fatigue, sleep disorders, changes in appetite, depression, and anxiety (Price, 2004). In clinical experience, although patients in later stages, a number of patients with later stages of cancer still hope encouragement from health care professionals even if they have considerable physical and psychological discomfort. These positive messages can give them faith and hope.

Fear appeals are propaganda aimed at targeting specific psychological reactions from audiences. The fear appeal connects audiences with negative

messages to arouse fear (Hyman & Tansy, 1990). It is one of the most common strategies adopted in health communication (Wang, 1997; Huang, 1999). Persuasive messages include descriptions that frighten people to arouse fear in audiences. These messages arouse negative psychological and emotional reactions to increase internal motivation in audiences. This internal motivation primarily involves staying out of trouble or relieving tension and restlessness to relieve stress. It can also involve changing the philosophy and attitude to avoid negative threats (Wang, 1997). Fear is a negative emotion that is caused by threats that people perceive to be relevant to them. Fear often evokes strong emotions and motivation to defend or escape (Zou, 2001) from a situation. Therefore, a number of scholars view threats as relevant and important to targets (Witte, 1994) or harmful physical or social outcomes (Hale & Dillard, 1995). A mild degree of threat in fear appeals is most effective at changing the opinions of targets (Wang, 1997; Huang, 1999; Sheng, 2002).

Fishbein and Ajzen (1975) indicated that attitude influences a behavior only through intentions. Communication and persuasion theory held that effective messages must be persuasive. Messages must first gain the attention, understanding, and acceptance of recipients before they can change the existing attitudes and positions of recipients. Scholars have indicated that behavioral intentions are more directly associated with actual behavior than beliefs are when forecasting an individual behavior (Blackwell et al., 2001). Additionally, measurement results of behavioral intentions are extremely close to the occurrence of actual behavior (Baker & Crompton, 2000). Therefore, in this study, we used the

idea acceptance to measure the effectiveness of smoking cessation communication based on audiences' perceptions of advertising content with smoking cessation messages and their reactions, attitudes and impressions.

The extended parallel process model (EPPM) is based on the parallel reaction model developed by Leventhal (1970). This model adds the protection motivation theory developed by Rogers (1983) can be used when interpreting the risk control process. When interpreting the fear control process, it uses the drive theory developed by Janis (1967) and McGuire (1968). After integrating these three theories, Witte (1992) developed a new theory: the EPPM (Huang, 1999). This theory proposes a more accurate interpretation of the reaction process when audiences process messages.

According to the EPPM, fear appeals arouse within two types of status assessments made by audiences toward messages. These are threat assessments and effectiveness assessments. Audiences first perform threat assessments of messages. They perform these assessments based on the perceived prevalence and perceived severity of the negative effects they incur from the message content. As the threats described in the messages become more relevant and severe, audiences strongly believe in the potential of encountering these threats. This motivates the audiences more to perform assessments on whether the suggestions provided in the messages are effective. When audiences perform effectiveness assessments, reaction effectiveness and self-efficacy are extremely important factors. Audiences control risks on the cognitive level

based on these two factors, seeking effective suggestions in the messages to avoid these threats. However, if audiences view the threats indicated in the messages as too strong, they will not endure them and instead engage in defense mechanism to control fear. They engage in denial and evasion to alleviate their fear. In irrelevant or unimportant situations, audiences cease their assessment and ignore the messages (Witte, 1992). Audiences select one of three reaction types based on their individual feelings: fear control, risk control, or ignoring the message (Witte, 1996).

## Methods

The subjects were male patients with head and neck cancer receiving radiation therapy in the oncology department of a medical center in southern Taiwan. The sample comprised cancer patients with histories of smoking (at least one cigarette daily for at least three consecutive months). We adopted a between-subject experimental method and randomly distributed one of two different experimental questionnaires (with positive messages or negative messages). The framework is shown in Figure 1. Based on the above literature discussion and research framework, the following hypotheses are proposed:

- H1: For patient of head and neck cancer, a positively-framed message results in better acceptance of ideas than a negatively-framed message about stopping smoking.
- H2a: For patient with Stage I or Stage II cancer, a negatively -framed message results in better acceptance of ideas than a positively -framed message about stopping smoking.

H2b: For patient with Stage III or Stage IV cancer, a positively-framed message results in better acceptance of ideas than a negatively-framed message about stopping smoking.

H3: The acceptance of ideas is influenced by the interactive effect of message framing and perceived fear degree.

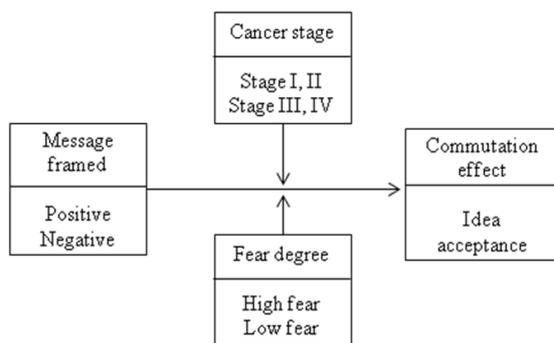


Figure 1. The Research Framework

### *Ethical Considerations*

The Institutional Review Board/Ethics Committee of the hospital conducted the ethical review for this study. We began officially surveying the subjects only after obtaining approval. We also fully explained our research goals, steps, and expected time to finish the study. We conducted research after we obtained consent from patients who signed an agreement. We used codes to conceal the identities of the respondents during the research period, perform systematic analysis of the overall data, and comply with the Personal Information Protection Act and relevant laws and regulations, ensuring the privacy of all patients.

### *Advertisement Message Copywriting*

We referenced and revised the message copywriting manipulation scale

developed in a master's thesis of Lee (2010) to copy write the advertisement message. The positive advertisement copywriting was dependent upon the degree of likeability perceived by the subjects in response to beneficial situations in the advertisement. The negative advertisement copywriting was dependent upon the degree of fear perceived by the subjects in response to harmful situations in the advertisement. We copy write the advertisement content based purely on textual description. We did not use any pictures to avoid interfering with the subjects and influencing the accuracy of their responses. The copywriting presented formatting and content that highlight the benefits of smoking cessation and the harms of smoking on health. The information showed the improvement or deterioration in health caused by smoking cessation and smoking, respectively. We did this to test the patients' reactions toward positive and negative message framing. We designed eight types of messages which are divided into two types of situations. The four types of positive messages emphasized on the rewards of smoking cessation. The four types of negative messages stressed the damage caused by smoking.

The four types of copywriting manipulation for the negative/ ***positive*** messages framing stressed the rewards of smoking cessation. These narratives were as follows:

(1) Smoking increases/ ***cessation can improve*** the side effects of cancer treatment (such as inflammation of the oral mucosa, lockjaw, gingival recession, tooth loss, muscle fibrosis, nausea, and dry mouth).

(2) Smoking reduces/ ***cessation can enhance*** the effectiveness of cancer treatment and guard against cancer re-

currence. It can also reduce skin aging and dryness, giving patients a higher self-confidence.

(3) Smoking can lead to/ cessation can prevent other types of cancer (such as lung cancer, nasopharyngeal cancer, oral cancer, and stomach cancer) and improve health.

(4) Smoking can increase/ cessation can reduce the occurrence of impotence and premature ejaculation and improve the stench emitted by the body, increasing the chances of having girlfriends and boyfriends and reducing the distance between friends.

The study was conducted from October 2012 to December 2012 and used personal interview along with questionnaires. A total of 124 questionnaires were returned but only 119 were valid. The valid sampling data is shown in Table 1.

#### *Reliability and Validity*

A subject's reaction to fear is the degree to which subject feels emotional fear after observing a message content (Janis & Feshbach, 1953). In this study, we referenced the indicators used by Ruiter et al. (2003) to measure fear. We revised these indicators as items by using a semantic differential method to assess fear. This is because fear is a relative concept (similar to love/hate, happy/sad, and favor/fear). We measured fear on a scale from 1 point to 7 points. Positive emotions had higher scores and negative emotions had lower scores. The internal consistency and reliability analysis for the pretest resulted in a Cronbach's  $\alpha$  of .983.

In addition to support concepts, we also measured the idea acceptance based on behavioral intentions toward smok-

ing cessation. We defined the idea acceptance as the participants' overall acceptance of the conceptual behavior referenced in the advertisements after stimulation from the advertisement copywriting. We extended the idea acceptance measurement scale developed by Lee (2010) using a 7-point Likert scale. We gave 7 points as the highest acceptance of concepts among the participants, whereas 1 point is the lowest acceptance. The four measurement items were as follows: after reading the advertisement copywriting, "I support the concept of smoking cessation more"; "I am more willing to continue my smoking cessation behavior"; "I am more willing to attempt to communicate the dangers of smoking to my friends and relatives"; and "I am more willing to support activities advocating smoking cessation." The internal consistency and reliability analysis for the pretest resulted in a Cronbach's  $\alpha$  of .920.

We adopted text manipulation messages for independent variable of message framing. To confirm our understanding of the manipulated variables in subjects' perceptions within the experimental design, we used the statistical analysis after collecting the sample to measure whether our experimental manipulation was successful. We divided the advertisement copywriting into two types (positive messages and negative messages). Each type had two items within the questionnaires, for a total of 4 items for experimental verification to understand whether the presentation of the advertisement message copywriting as perceived by the participants differed significantly. After the experiment, we used the independent sample *t*-test to analyze whether the participants' reactions toward the positive and negative advertisement message

appeals manipulated in this study differ significantly. The analysis results indicate a p value < .001 for the test on the positive message and negative message

copywriting (Table 2). This means that this study had a good manipulation validity.

Table 1. Valid sampling data distribution

Variable		n	Variable		n
Age	50 below	46	Cancer stage	Stage I-II	35
	50 above	73		Stage III-IV	84
Degree	Below High school	71	Message framed	Positive framing	61
	Above High school	48		Negative framing	58

Table 2. A test of manipulation in positive and negative framing advertisement copywriting

Message framing	Perceive Messages-framing	N	Mean	SD	t Value	P Value
Positive framing message copywriting	Perceive positive framing	61	6.31	1.021	7.906	< .001
	Perceive negative framing	61	4.01	2.034		
Negative framing message copywriting	Perceive positive framing	58	4.21	1.887	-6.812	< .001
	Perceive negative framing	58	6.21	.732		

### Data Analysis

To understand the influence of message framing on the effectiveness of communication, we analyzed the idea acceptance based on the results of the audiences toward the positive and negative-framing message copywriting. We used the independent samples t-test for statistical analysis. The results indicated that the effects of positivity and negativity in messages on idea acceptance differed significantly ( $p = .043$ ). Therefore, H1 was supported and the positive mes-

sages resulted in superior effectiveness in idea communication (Table 3).

### *The Influence of Framed Messages on Patients with Different Stages of the Disease*

To understand the influence of positive and negative framing messages during different stages of the disease on the effectiveness of communication, we divided the participants into two groups based on their cancer stages. The first group has Stage I and Stage II cancers,

which we labeled as the early disease. The second group has Stage III and Stage IV cancers, which we labeled as the advanced disease. We further divided these two groups into four combinations based on the positivity

and negativity of the messages: positive messages in Group 1, positive messages in Group 2, negative messages in Group 1, and negative messages in Group 2. We analyzed the idea acceptance in these four combinations.

Table 3. The influence of message framed on communication effectiveness.

Variable	Message Framing	N	Mean	SD	t Value	P Value
Idea acceptance	Positive framing message copywriting	61	6.11	.834	2.040	.043
	Negative framing message copywriting	58	5.76	1.048		

We used the independent sample t-test for statistical analysis. The results indicate that the effects of positive and negative framing messages on the effectiveness of communication did not differ significantly for patients with Stage I or Stage II cancer. But the effects of positive and negative messages on the idea acceptance differed significantly among patients with Stage III or Stage IV cancer, with a p value of less than .05 ( $p = .021$ ). Therefore, H2a was rejected, whereas H2b was supported. This indicates that the mean was higher for positive messages than it was for negative messages. Therefore, the patients with Stage III or Stage IV cancer who receive positive framing messages had a higher idea acceptance. That is, the greater use of positive messages for patients in Stage III or Stage IV cancer could improve the idea acceptance

#### *Fear Degree and the Effectiveness of Communication*

To understand the influence of fear on the effectiveness of idea communication, we divided the participants into a high-score group and a low-score

group based on their mean fear scores and independent samples t-test. The results indicate that the effects of different degrees of fear on idea acceptance differed significantly ( $p = .025$ ). Therefore, the effectiveness of cancer communication was seen in the cancer patients with lower levels of fear. Hence, H3 was supported.

In this study, we found that the influence of fear degree and the disease stage on effectiveness of idea communication after the cancer patients observed the copywriting messages, particularly in the group that observed the negative messages, differed clearly based on the two-way ANOVA results. In the group that observed negative message copywriting, the effectiveness of idea communication was superior at earlier stages of the disease with higher levels of fear. In contrast, the effectiveness of idea communication was weaker at earlier stages of the disease but with lower levels of fear. Additionally, the effectiveness of idea communication was superior in patients with later stages of the disease and lower levels of fear. The effectiveness

Table 4. The Influence of Fear on Communication Effectiveness

Variable	Fear Degree	N	Mean	SD	t Value	P Value
Idea acceptance	High Fear	51	5.77	.893	2.265	.025
	Low Fear	68	6.13	.805		

of idea communication was lower in patients with later stages of the disease and higher levels of fear.

### Results and Suggestions

We sought to verify the influence of message framing on the effectiveness of communicating the effects of smoking to cancer patients. Data analysis indicates that positive messages and negative messages differed significantly in their effects on the idea acceptance, with positive messages achieving better results. Additionally, when adding the disease stage as an interfering variable, positive message framing achieved better results in idea acceptance for patients with Stage III or Stage IV cancer. In contrast, the positivity or negativity of messages did not influence the idea acceptance among patients with Stage I or Stage II cancer. In this study, we found that positive messages were better accepted by cancer patients and were clearly effective than negative messages regardless of the message framing used in changing the health behavior of these patients. After adding the disease stage, the acceptance of positive messages increased in later stages of the disease. This clearly indicates that advanced cancer patients continue to hope for miraculous positive messages and for the chance of being cured.

We found that idea acceptance was higher among cancer patients with lower fear after receiving the copy written

content regardless of the message framing. Negative message framing resulted in higher idea acceptance among patients in earlier stages of the disease with higher levels of fear. Based on the EPPM, fear appeals make audiences perform two kinds of assessments of the messages: threat assessments and effectiveness assessments. Audiences first perform threat assessments of the messages. They perform these assessments based on the perceived prevalence and perceived severity of the negative effects they incur from the message content. As the threats described in the messages become more relevant and severe, the audiences strongly believe in the potential of encountering these threats. This motivates the audiences to assess whether the suggestions provided in the messages are effective. When audiences perform effectiveness assessments, the reaction effectiveness and self-efficacy are extremely important factors. Audiences control the risks on the cognitive level based on these two factors, seeking effective suggestions in the messages to avoid these threats. However, if the audiences view the threats indicated in the messages as too strong, they cannot endure them and instead engage in defense mechanism to control fear. They engage in denial and evasion to alleviate their fear (Witte, 1992).

The results of this study indicate that after receiving the copy written content, cancer patients with lower levels of fear had higher overall idea accep-

tance. In contrast, those with lower levels of fear had better idea acceptance. In addition, patients in earlier disease stages with higher levels of fear had better idea acceptance. This indicates that the early-stage cancer patients had a certain sense of fear when assessing the reaction effectiveness and self-efficacy. However, these threats were not viewed as serious by early-stage cancer patients. Thus, they were able to accept the messages and control risk on the negative level based on these two factors. They sought effective suggestions for avoiding threats from the messages. Therefore, idea acceptance was better among patients in early disease stages with higher levels of fear.

Based on the results of this study, medical teams guiding activities on promotion of smoking cessation among cancer patients through group health education can use positive messages and less fearful content to convince these patients to quit smoking. When using individual health education models, medical teams should first understand the special conditions of individual patients before determining which methods to use to persuade patients to quit smoking. We suggest that negative message framing with moderately threatening content can be used for patients in early stages of the disease to persuade them to quit smoking. During later stages of the disease, we recommend the use of positive message framing and less threatening content. The primary goal is to convey the benefits of smoking cessation to patients to convince them more to quit smoking, ultimately aiding them in escaping the dangers of tobacco as soon as possible.

#### Conclusion

The results of this study indicate that positive messages resulted in better idea acceptance than negative messages did. Positive message framing resulted in better idea acceptance among patients in Stage III or Stage IV cancer. After receiving the copy written content, the cancer patients with lower levels of fear had better idea comparison. Early-stage cancer patients with higher levels of fear had better idea acceptance with negative messaging framing.

These empirical results can serve as a reference for health care professionals engaging in health care education. These results should provide assistance for patients and their families and can be substantially applied to clinical practice.

#### Acknowledgments

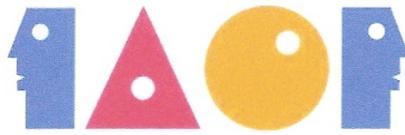
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ENHANCING CONSTRUCTION COMPANIES' MARKETING  
STRATEGIES: THE CONSTRUCTION INDUSTRY IN TAIWAN

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Abstract

Following the completion and operation of the High Speed Railroad, many construction projects of major public infrastructure in were begun. These domestic public construction projects will only require maintenance and other jobs, which do not involve a high degree of professional technology. Those construction companies which own advanced technologies, professional talents and state-of-art equipments will have to seek opportunities form overseas and encounter the fierce international competition. Domestically, the consumers' demands caused by the social and technological upgrade will also lead to the changes of the living environment. The construction industry will inevitably expect the next upcoming wave of changes. This study is to analyze, based on Michael Porter's "Diamond Theory", the strategic module for the market segmentation and positioning of the domestic construction companies. It is also hoped that the outcome of the study can help companies better understand their competitive advantages, and provide reference for construction operators to conduct company re-engineering.

Keywords: Construction industry, Living environment; Diamond Theory; Market Segmentation; and Strategic module

## Introduction

### *Background of Research*

In recent years, enterprises have gradually emphasized the importance of enhancing competitiveness towards them and also expect to obtain the benefits they want to obtain by providing new products or services. They carry out this process for nothing but to acquire advantage on the market, take the leading position and then increase their opening income. Whether enterprises with great advantage adopt low cost strategy or dissimilation strategy, their profits will accordingly increase and their wealth will accumulate (Afuah, 1997). In the meantime, market demand and supply will also change as external environment changes. Technologies and knowledge provided by the former products or services inside enterprises will be tested by trend.

According to development trace theory of S curve, it is found that enterprises formerly devoted to product improvement may undergo aggressive technological change so that the former products are fully replaced and the ability and endowment the former

products rely upon for existence will weaken. Consequently, leaders in an industry may become losers but start-up new enterprises may quickly become leaders of an industry (Afuah, 1997; Foster, 1986; Khalil, 2000). The 21st century is an age with fierce industrial and commercial competition. Speed, efficiency and performance are basic conditions for survival of enterprises. Besides, diversification of the society requires workers engaged in every industry or trade to value quality and competitiveness. Namely, proper working is no longer sufficient for survival of enterprises. On the contrary, only enterprises with excellent operation can survive in the environment with increasingly fierce global market competition. With many consumption choices, consumers will obviously first consider and seek products or services which can satisfy their demand. In order to have desirable profitability, enterprises must deeply know about and satisfy demands of the target customers and work better than their competitors.

By observing growth and decline of domestic construction industry, the researcher finds this industry is the mostly influenced by business cycle factors and related overall environment factors. Competitiveness necessary for

an industry varies as time goes. Therefore, this research, as per diamond theory of Michael E. Porter, explores the way the construction industry makes competitiveness of their value activities further conform to environmental transformation.

Major governmental public infrastructure construction projects have been completed and put into operation. Traditional construction industry is greatly influenced sharp decline of governmental public construction, outward movement of most private investment in industries, increase of unemployment rate and other factors. Although real estate industry appears to show signs of improvement, the prospect is still not optimistic on the long run. Real estate industry will also be mired in the trouble of bleak business. It is impossible to avoid irrational fierce competition within the industry. By then, vicious cycle will inevitably form and signs of successive decline will appear. The construction industry of Taiwan will lose competitiveness. Under the framework of WTO, irresistible external competition also exists, which causes a significant loss to development of national economy. Therefore, the researcher will thoroughly research and analyze structure of traditional construction industry in administrative management aspect and techno-

logical management aspect so as to provide guidelines for the industry to make decisions about enhancing competitiveness. Only in this way will the construction industry of Taiwan operate perpetually.

### *Motives of Research*

Thanks to stimulation of governmental policies and easing relationship between Mainland China and Taiwan, domestic real estate industry in prolonged recess really shows signs of improvement. Real estate transaction has become active thanks to such policy benefits as offering award for urban renewal and private urban land readjustment as well as decline of bank interest rate, increase of demand for office buildings and active market foreclosure transaction activities and so on. However, it is found that our unemployment rate hasn't decreased but inflation constantly increases, which causes important unstable factors to future real estate market. From the perspective of economics, the sum of unemployment rate and inflation rate is misery index. Price level of domestic goods constantly increases but unemployment rate becomes higher and higher and misery index always increases. Therefore, the real estate industry will be severely affected on the long run and the construction industry

will be directly affected. Constant increase of international crude oil price causes fluctuation of domestic livelihood goods, which will certainly greatly impact the construction industry of Taiwan.

Prosperity and decline of the construction industry can serve as index of economic prosperity because thousands of building materials are applied in the construction industry, namely, people engaged in production of thousands of building materials rely on the construction industry for survival. It is justified to say the construction industry is the leader of industries. Unemployment rate of Taiwan increases mainly because depression of the construction industry has affected its upstream and downstream industries, and expertise and knowledge of workers engaged in these industries are limited so that it is particularly difficult for them to turn to other industries. Thus most workers engaged in the construction industry have to turn to Mainland China to seek development. Domestic construction companies used to value management at technological level. In the current age featuring vigorous development of science and technology and increasingly fierce industrial and commercial competition, construction companies often neglect goodwill building, satisfaction of consumers' demand and

various past experiences, which are prerequisites for enhancing competitiveness. Considering this, all the current construction companies have begun to thoroughly explore and research the way of enhancing competitiveness. They aim at seeking their own development space and continually operating by taking advantage of this round of real estate prosperity improvement. For competitiveness enhancement, it is necessary to know about aspects of construction management. Usually called "management" includes human resources management, financial management, marketing management, information management, strategy management, environmental management, etc.

However, construction management is summarized as management in administrative aspect and technological aspect. Construction management aims at promoting quality improvement of construction products, effectively controlling construction period and complying with hygiene safety, properly protecting environment so as to realize maximum perfection of construction products. At the same time, diamond theory of Michael E. Porter is applied in quantified analysis to discover supply, demand and orientation of market, which will be utilized as the basis for predicting investment feasibility. With

such information, construction operators will be able to provide optimum reference for investors to make decisions. Namely, perfect construction management requires effective evaluation and control of enterprise planning, design, contract awarding, construction, manufacture supervision, acceptance and operation. With fine industry work division and overall integration in hi-tech times, scope and management aspects of construction projects should be diversified to enhance market competitiveness of construction. Construction industry of Taiwan should be introduced into international market in the context of WTO. Only in this way can the construction industry perpetually operate.

High speed railways have been completed and put into operation. Some major projects have been successively completed. Domestic large construction projects will necessarily decrease significantly in the future. Projects in the future will be dominated by maintenance projects and traditional building projects. The fate of many current construction operators, machines and equipment, technologies, knowledge and fund is uncertain and they will inevitably face fierce competition. This research tries exploring competitiveness of domestic construction companies in the same strategic group by

combining diamond theory of Michael E. Porter and 3C competition model and also exploring union of the same strategic group to enhance international competitiveness. In this way, this research provides reference for domestic building construction companies to respond to strategy of fierce domestic market competition.

### *Purposes of Research*

Consumers at present are provided with diversified products and services and they can choose within a greater and greater scope. However, at the time of choice, consumers most often consider based on their understanding of quality, services and value. As social environment and life philosophy change, people gradually care about surrounding environment. Nevertheless, hardware facilities and equipment in connection with people's living environment are mostly construction products. Therefore, value of construction industry is not determined by top-down method of the government, construction companies or elite designers. Instead, it lies in enabling actual users to express their demand and feeling during construction process. Thus the researcher tries to explore strategic group of market segmentation and positioning of construction companies in Taiwan by combining explorative research,

diamond theory and 3C competition model.

#### Discussion of Related References

##### *Diamond Theory*

Joseph A. Schumpeter, father of modern enterprise concept, emphasizes that competition is a kind of abundant kinetic energy and economic competition essentially doesn't aim at balance but endless change. Therefore, in the book *The Competitive Advantage of Nation*, Michael E. Porter proposes creating ability of competitive advantage by means of diamond system, namely, key elements of enterprise advantage (as shown in Figure 1). For enterprises, reform and innovation are an endless process. Besides, reform and innovation aim at building competitive advantage and the ability of acting agilely and seizing best competition opportunities. For creating such ability, it is necessary to discuss the following four environmental factors.

(1) Production factor conditions: Some production factor conditions are determined innately and some need to be developed or fostered for a long term. Porter classifies production factor conditions into human resources, capital resources, knowledge resources, natural resources, infrastructure construction,

etc. Porter believes long-term development and fostering are a main source of creating competitiveness.

(2) Demand conditions: Porter thinks that both market size and market characteristics will influence competitiveness. On the one hand, demand conditions increase productivity of an industry by economy of scale; on the other hand, quality demand conditions of products or services provided by industries and seizure of market trend are necessary for creating more innovation and development motives. Besides, growth rate of the market, the number of manufacturers, ability of satisfying international market demand in the future are all possible factors influencing creation of industrial competitiveness (D' Cruz and Rugman, 1993). Source: Michael E. Porter, *The Competitive Advantage of Nation*, Tianxia Culture Press, p106.

(3) Related and supporting industries: An industry will have international competitive advantage only if its related industries and upstream industries develop more healthily and have greater competitive advantage. Industries are input and output of each other. Influence of related and supporting industries on an industry can be shown through direct and indirect effect of industry correlation (Porter, 1990; Lin

Shimo, Xu Shuming, 1999). In addition to whether the related and supporting industries have competitive advantage, important causes influencing industrial

competitiveness also include interaction among enterprises, particularly coordination and cooperation

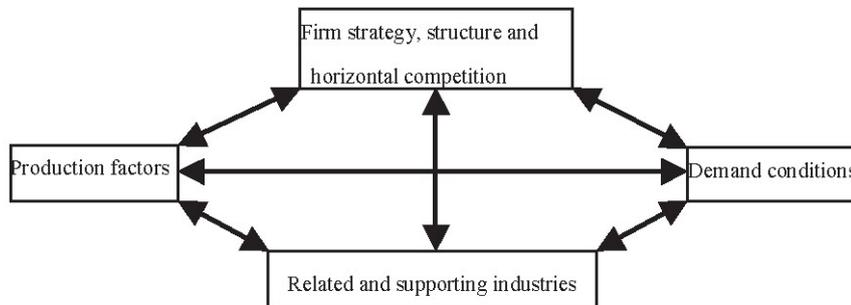


Figure 1. Key elements of enterprise advantage

mechanisms as well as outflow and proliferation of research and development achievements of manufacturers (Narula, 1993). According to some research, related and supporting industries should also include ordinary infrastructure industries, such as construction, finance and transportation industries (Tan Dachun, 1998).

(4) Firm strategy, structure and rivalry: Firm strategy and structure are usually influenced by social, cultural and historical factors so that they form different competition patterns. Porter thinks more vague factor (i.e., industry culture) can be used for measurement (Van Den Bosch, Van Prooijen and Porter, 1992). Foundation, organization and management pattern somewhat influence competitiveness of enterprises. More obvious domestic market compe-

titition means greater enterprise efficiency and is beneficial for industries to enter international market and enhance international competitiveness. The above four environmental factors form diamond system of a bidirectional strengthened system. Effect of any factor will inevitably influence status of the others. That is to say, advantage of any factor is beneficial for the enterprise to create or enhance advantage in other factors.

Besides the above four main factors, diamond system also includes two most important exogenous variables, namely “chance” and “government”. Chance is not related to environment of an industry and is not internal ability of an enterprise. Even government can’t influence chance. The reason is that chance can break the original status and provide new competition status and

only comes out by accident. It has unidirectional system relationship with the four key elements of diamond system.

Chance is specially proposed by Porter and its concept originates from the opinion about industry economy theory. As pointed out by references in the past, factors influencing industry structure and enterprise development should include random factors originating from inside industry or enterprise. Only this opinion can explain the fact that manufacturers with the same environment and similar resources produce different competition results (Scherer and Ross, 1990). However, this opinion has received more criticisms because diamond model will lose academic preciseness in explaining competitiveness if unexplainable reasons are attributed to random factors. In international competition, "government" as an exogenous variable will also influence the four key elements of diamond system because it plays the role of intervention and laissez-faire balance. Actually, government is neither positively nor negatively related to the other key elements. That is to say, government can both promote and obstruct industry development. Industry competitiveness can be influenced by whether political situation is stable, whether the government supports industry, whether economic system of the government is

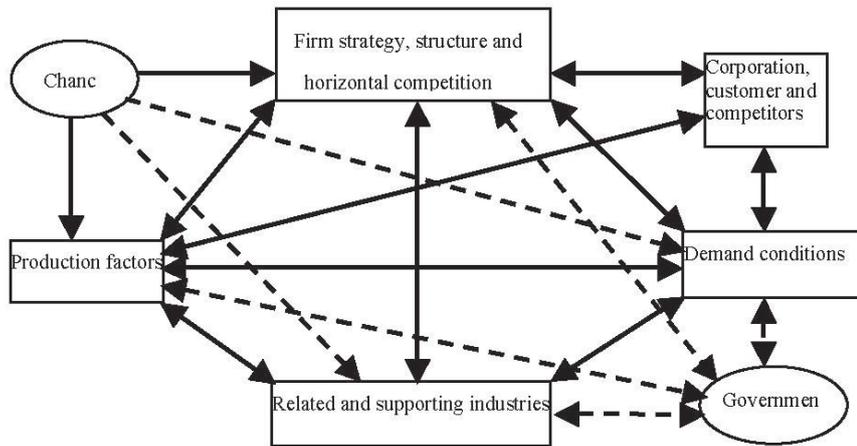
progressive, whether foreign exchange control by the government is loose and whether governmental decree supports industry, etc. Thus Porter thinks role of the government exerts fairly subtle influence on the four factors. As a result, bidirectional system relationship exists between it and the four key elements of diamond system. Jain (2003) has proposed corporation, customer and competitors, which are called 3C model for short. 3C model represents fundamental elements enterprises depend on for existence. According to 3C model we can know about potential forces of industry competition and define competitive advantage by means of cost and differentiation. Thus 3C model is closely related to the four key elements in diamond system. Therefore, the researcher tries combining the two models to construct Figure 2 as below.

#### Concept Model of Living Environment

The construction products researched herein are mainly provided to consumers for residence. Thus it is necessary to know about demand of consumers. As pointed out by Lai Kulkui and Liu Songgui (2002), community residents' perception of living environment quality arises from comparison between their expectation of living environment quality and construction manufacturers' cognition of living en-

vironment quality. Factors influencing living environment quality are summarized herein, which altogether include 13 determinants. Community residents'

expectation before they accept living environment quality may be different from DIAMOND THEORY AND THE 3C MODEL 9.



Source: Michael E. Porter, The Competitive Advantage of Nation, Tianxia Culture Press, pg. 186 Figure 2.

Figure 2. Complete Diamond System

Complete diamond system their perception after they accept living environment quality. Through this research, it is found that analysis model of living environment quality and PZB service quality model are verified in the same way, which means living environment quality concept model shows consumers' recognition and expectation of living environment quality. Please refer to Figure 3.

On the basis of theory, the researcher introduces research methods, defines living environment quality and constructs concept model as precise as possible. After explorative qualitative discussion, the researcher finds out 13 determinants and concept model of liv

ing environment quality by summarizing opinions of construction operators and community residents. Through this research, it is initially found that just like scientific discovery in natural science research, living environment quality concept needs further input of resources and requires applied research to be carried out to invent technology and conduct commercialization (product, service and process) development, for the purpose of promoting economic development and improving welfare of the public.

#### Strategy

Definitions of strategy are summarized as follows: "On drawing up battle plan and individual campaign and de-

termining individual combat” proposed by Von Clausewitz (1967); “a complete plan: plan selected with Lai Kuikui, Liu

Songgui, Concept Model and Determinants of Living Environment Quality. Figure 3 Concept model of living

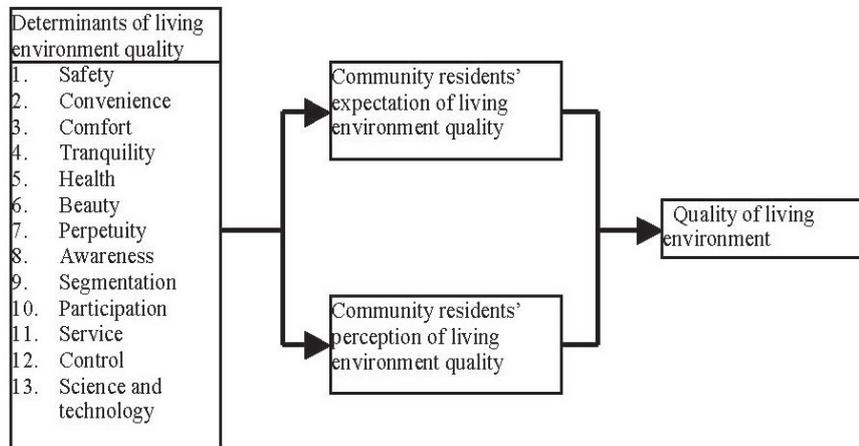


Figure 3. Concept Model of Living Environment Quality

environment quality respect to every possible situation” proposed by Neumann and Morgenstern (1944); “determining basic long-term objectives and purposes of enterprises and the actions and resources allocation for realizing these objectives” proposed by Chandler (1962); “planning of basic missions, purposes and objectives of organizations, policies and strategies for realizing missions, purposes and objectives as well as strategic methods necessary for realizing purposes of organizations” proposed by Steiner and Miner (1977); “a uniform, complete and integrated plan for realizing objectives of enterprises” proposed by Glueck (1980); “a series of actions and decision-making pattern” proposed by Mintzberg and McHugh (1985); “methods for realizing

objectives of organizations” proposed by Hatten and Hatten (1988); and “plans made and actions taken for helping organizations realize purposes” proposed by Miller and Dess (1993). Wu Sihua (1996) thinks meaning of strategy lies in the following four aspects: (1) evaluating and defining enterprises; (2) building and maintaining invincible competitive advantage of enterprises; (3) a series of major activities for realizing objectives of enterprises; (4) guideline principles for forming allocation process of internal resources. Hitt, Ireland, and Hoskisson (1997) proposed “a group of integrated and coordinated undertaking and actions for exploring core competitiveness and obtaining competitive advantage”.

Strategy means theory about the way companies compete successfully, namely, strategy of companies is companies' optimum supposition about key economic processes of a certain industry or market and the companies utilize these processes to obtain their own competitive advantage" (Writer: Jay B. Barney, translators: Huang Yingshan, et. al., 2003).

### *Enterprise Strategy*

In order to obtain excellent investment return, enterprises must pursue profitability and market share. Optimum strategy is necessary for this purpose. Therefore, Porter proposes that optimum strategies of enterprises are low cost strategy, differentiated strategy and focused strategy (Michael E. Porter 1980). (1) Low cost strategy Low cost strategy aims at strictly controlling cost. On the precondition of not influencing product quality, services or other fields, the cost must be lower than that of competitors. Low cost can put companies in an advantageous position and protect them from being harmed by five main competition forces. (2) Differentiated strategy Differentiated strategy means that the products or services provided must be unique and irreplaceable. With differentiation, companies can provide more added-value for

consumers and receive greater customer loyalty than their competitors.

Therefore, companies can obtain profit higher than industry average profit. Success of this strategy can create a shield which can resist five main acting forces. Mintzberg (1996) thinks differentiation can be increased in six manners, i.e., price differentiation, image differentiation, logistics differentiation quality differentiation, design differentiation and undifferentiation. (3) Focused strategy Focused strategy only focuses on specific market segmentation and provision of products and services needed by this market segmentation. Namely, it focuses on specific customer group, product line or regional market. Basis of this strategy is that compared with their competitors with greater competition range, companies focusing on specific objectives realize their strategic objectives within smaller range with greater performance and efficiency. As a result, companies can not only meet demands of specific objectives and create differentiation but also reduce cost. In this way, companies acquire strength of defending against competitions.

### *Industry Structure*

(1) Industry organization theory, in the essay Price and Production Policies

of Large-Scale Enterprise, Edward S. Mason (1939) points out that market structure will influence pricing and production strategies of manufacturers. Joe S. Bain (1959) develops theory of Mason into the industry group model of structure, conduct and performance (SCP) and discusses relationship among market structure, performance and conduct. Bain thinks industry structure means the competition relationship among manufacturers in a market and main factors composing such competition relationship includes relative scale of manufacturers, market centralization, barriers preventing potential competitors from entering the market, vertical integration, etc. Market conduct means strategic conducts which can be selected by manufacturers, including pricing conduct, advertising, research and development, etc. Market performance means the actions taken by manufacturers to pursue objectives and produce results, including production efficiency, financial efficiency, fairness and justness representing social efficiency. Scherer (1990) carries on SCP mode of Bain and has developed a set of more complete industry group analysis structure. According to Scherer, specific industries and market performance are influenced by conducts of purchasers and sellers on the market, market conducts of manufacturers are influenced by market structure, which on

the one hand is influenced by various basic conditions of market supply and demand and on the other hand is also influenced by conducts of manufacturers and government policies. The framework proposed by Scherer consists of five components, i.e., basic economic conditions, market structure, conducts of manufacturers, performance level and governmental public policies.

(2) Industry competition strategy Porter (1980, 1985) thinks the utmost determinant of enterprise profitability is industry attractiveness, and industry with high attractiveness has obvious opportunities and is under little threat. For seeking competitive advantage and superior profit, it is necessary to develop strategy to eliminate threats, i.e., the five forces framework developed by Porter. Porter proposes five specific attributes in industry structure will threaten clear attributes of companies' ability of maintaining or creating superior profits. The five forces are (a) new entrants; (b) industry competition; (c) alternative products; (d) suppliers and (e) purchasers. The five forces framework is summarized as Figure 4. Overall competition intensity of the five competition forces will determine industry average profitability of enterprises. Nevertheless, intensity of the

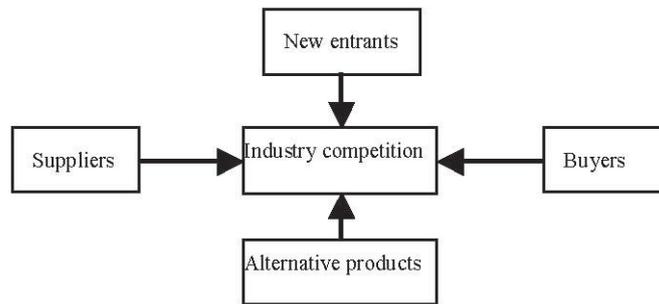


Figure 4. Five Forces Framework

five competition forces varies from industry to industry and changes as industries develop. Therefore, different industries have different innate profitability.

#### *Horizontal Competition*

Enterprises in the same industry attach importance to different factors, such as distribution channels, market segmentations served, product quality, technological leading position, customer service, pricing policy, advertisement policy, promotion and other factors. In many industries, it can be found that many strategic groups are formed among horizontal competitors.

The most immediate competitors of enterprises are those in the same strategic group as them. Enterprises will move among strategic groups in case of slight threat and great opportunities among strategic groups. Mainly due to mobility barriers, such move-

ment also needs cost. Mobility barriers are industry factors which prevent enterprises from moving among different strategic groups. Mobility barriers include entry Source: Poter, M.E. (1980). *Competitive Strategy*, New York: Free Press Figure 4 Five forces framework barriers preventing enterprises from entering a strategic group and exit barriers preventing enterprises from exiting the original strategic group. Therefore, when an enterprise attempts to enter the other strategic group, it is necessary to first evaluate the difficulty of mobility barriers and then determine whether it is worthwhile to move (Writers: Hill and Jones, translator: Huang Yingshan, 1999).

Poter points out that fierce horizontal competition compels enterprises to seek methods of improving efficiency so that they become superior international competitors. Horizontal competition produces pressure innovation, quality improvement and cost re-

duction, which is beneficial to upgrading of industry investment. With successive completion of major projects, domestic construction industry has created many new milestones in project management and its technical innovation, quality improvement, cost reduction, construction period control, environmental protection, safety and sanitation have all entered mature stage. This is a great opportunity for promoting investment upgrading of the construction industry.

### *Market Segmentation*

Market segmentation mainly aims at specialization. By means of consumer analysis and market segmentation, enterprises can select one or more consumer market segmentations and focus on catering to demand of consumers. Market segmentation is a method that a company uses to select customer group by means of segmentation so as to acquire competitive advantage. This method is based on demand or preference differences of customers (Abell). Green and Krieger (1999) propose that market segmentation is the art and science of segmenting people or matters into individual groups. Members of each group cannot only be unique but also can be alike. Philip Kotler proposes that market is made up of purchasers, who are different in

many aspects. They may be different in desire, purchasing power, geographical position, purchase attitude and actual purchase. Any of these variables can be used to segment the market. That is to say, the market is segmented into several obviously different sub-markets according to purchasers' different requirements about products and marketing mix (Translator: Fang Shirong, 1995). Jackson proposes that customers have different interest demands and differences and therefore can be classified into different categories, which is the basis of market segmentation (Chen Dawei, 2004). Hawkins, Best and Coney (1992) propose that market segmentation is the basis of most marketing strategies and specific marketing plans developed according to different demands or purchasing power of consumer groups (Translator: Jian Zhenyu, 1996).

### Theoretical Discussion

Building of theoretical framework  
For realizing research objectives, the researcher, after performing summary, sorting and analysis, builds positioned strategic group and market segmentation model (as shown in Figure 4) according to diamond theory described in "Discussion of related references" and 13 determinants of living environment concept model. Positioned strategic

group and market segmentation of construction companies are embodied in their own ability and endowment and cognition of customers. They can only be obtained in combination with involvement of competitors. Customers (consumers) and competitors are a life community closely related to perpetual operation of the construction industry. Construction companies should have domestic or international competitive advantage. Enterprise strategy, indus-

try structure, horizontal competition and demand conditions are demonstrated pursuant to diamond theory of Porter (Porter, 2000). Demand conditions of the construction industry include 13 living environment quality determinants as its elements (Lai Kui-kui and Liu Songui, 2002). Figure 5 concisely describes research model of positioned strategic group and market segmentation of construction companies.

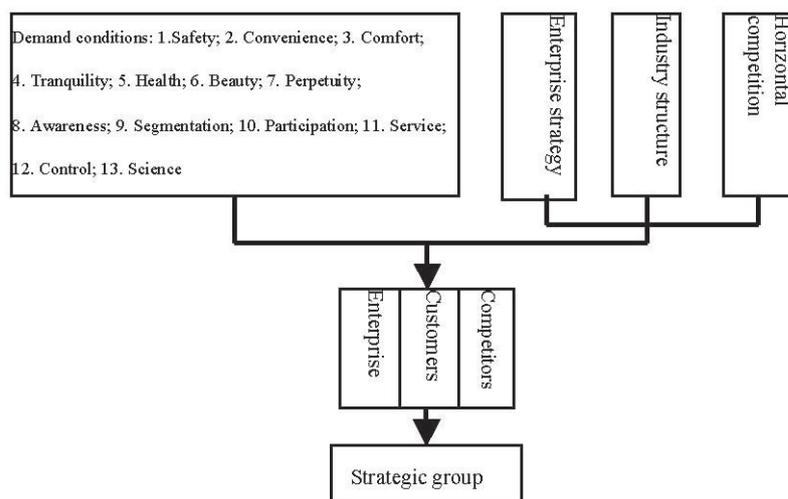


Figure 5. Research Framework

### *Interview*

Competitive advantage of 3C model lies in that demand conditions of diamond theory, enterprise strategy, industry structure and horizontal competition are used to explore market segmentations and positioned strategic groups of construction

companies. It was thought that references would be sufficient to develop complete theoretical framework. For preciseness of research, it is necessary to carry out explorative interview investigation and research. In-depth interview with construction executives is used to develop theo-

retical framework of competitive advantage.

### *Interviewees*

The researcher carried out one-to-one in-depth interviews with executives of listed or OTC-listed companies who administrate construction value-added activities (Ke Yaji, 1991). All related executives that will influence corporate operation in decision making are called construction operators, namely, main interviewees of in-depth interview in this research. The researcher selects construction operators from the companies whose operation activities involve all added-value related to construction activities. Operation activities should involve the Research, Development and Design Department, the Construction Implementation Department, the Marketing Department and the Decision-making Department.

The researcher selected five construction companies, namely, S, L, C, K and T. Groups with which the five companies are affiliated carry out research, development and design business, construction implementation business, marketing business and decision making business. The interviewees are managers or

general managers of various business departments. Altogether 25 construction executives have been interviewed.

### *Discovery Of Explorative Interview And Establishment Of Proposition*

According to discovery of explorative interview and summary, the following four propositions are summarized.

Proposition 1: Demand conditions are safety, convenience and beauty Demand conditions of customers are discovered by interviewing construction operators of the five construction companies. They unanimously believe community safety is the most important consideration, followed by convenience, which is in turn followed by beauty. Due to company attributes and regional division, they hold different opinions about other considerations. Therefore, safety, convenience and beauty are main demand conditions.

Proposition 2: Enterprise strategy is that land should be obtained at low cost and fund should be obtained at low interest rate, project design and construction should not consume materials or overlap, construction period, quality and budget should be

effectively controlled and products should be diversified.

As for enterprise strategy, they have the same opinion. The cost of obtaining land should be lower than the average cost at the same section and more efforts should be made to seek fund at low interest rate. Upon the prediction of improving quality, enterprises should consider construction convenience and avoid wasting materials and repeating construction. At the time of construction, budget cost should be strictly controlled and construction period should be controlled as expected. As for construction projects, even if the same residential community is built at the same section, the products will still be obviously different because designers and planners are different, direction and orientation of buildings are different, topography and area are different, cultural values of construction companies are different and target consumer groups are different. Construction companies must be operated by means of product diversification. Focused strategy can only be taken when the government implements favorable award measures and policies, or specific targets have such demand.

Proposition 3: Enterprise organization aims at clearly regulating duties of corporate departments, building favorable fame, obtaining trust of suppliers, strengthening product diversification and concluding contracts as detailed as possible. As for enterprise organization, their construction companies all establish internal development department, which is charge of observing development trend of construction market, evaluating and analyzing land development, obtaining land, etc. The Business Department is responsible for market investigation, production positioning, product pricing, sales business and post-sale services. The Finance Department should seek fund at low interest rate, send finance alert, build MIS and more importantly maintain finance transparent. The Construction Department should carry out project management. In addition, the Management Auditing Department is responsible for management of human resources. As for threat of new horizontal competition, they unanimously think that construction is a local industry and building fame is very important.

Therefore, the construction industry is less vulnerable to new horizontal competitors. The construction industry has a very low threshold. It

is very easy to enter this industry. Therefore, quality of construction operators varies. Operation pattern includes speculation pattern and perpetual operation pattern. Construction companies with perpetual operation pattern are mostly trusted by suppliers. Besides, almost all of them reserve multiple suppliers and some of them even have established long-term cooperation relationship with satellite plants. Therefore, threat risks from suppliers are minimized. Construction products themselves are differentiated. Consumers usually purchase at impulse. Especially, young people purchasing house for the first time seldom consider alternative products if an affordable house meets their demand. The construction operators unanimously believe that threat from alternative products will not be obvious only if product differentiation is strengthened. Construction products are products of project management. Each product is unique. Variable will occur at any time during construction.

Therefore, customers will inevitably be picky. Besides clearly stipulating contents of contracts, disputes with purchasers should still be solved through communication. Only when the purchaser is not satisfied

and it is impossible to consult with him or her, will construction companies resort to mediation through local public mediation committee. Horizontal competition is common. In addition to building fame and enterprise image, product diversification and attraction of extensive customer groups are also methods of avoiding horizontal competition.

Proposition 4: Horizontal competition requires further development of new product life cycle; fund, production and sale must be evaluated in order to exit the current strategic group or enter new strategic group.

As for horizontal competition, they think the construction industry should make appropriate adjustment according to trend and economic climate. Industry life cycle of each company is now during growing period or mature period. Therefore, they unanimously think constant developing of new product life cycle is necessary for the industry to remain in profitable growing period. They have different considerations with regard to exiting the current strategic group or entering new strategic group. Companies L, K and T think small and beautiful corporate organizational structure can be flexibly applied and it will be easy to enter

new strategic group or exit the current strategic group. Companies C and S think exit or entry varies as corporate organizational structure varies. In the matter of the two companies, exit or entry will be blocked and really difficult. However, fund, production and sale are considerations for changing strategic group according to their common evaluation.

## Conclusions and Suggestions

### *Research Conclusions*

Building competitive advantage is a necessary condition for perpetual operation. For perpetual operation of building construction companies in Taiwan, the researcher starts with operation of these companies, carries out explorative interview and investigation and develops theoretical framework of competitive advantage by carrying out in-depth interview with construction executives. The researcher also constructs important considerations of strategic group influencing market segmentation and positioning of construction companies. In conjunction with the indexes constructed by earlier scholars and construction operators, strategic group problems concerning market segmentation and positioning of con-

struction companies are solved more extensively and completely.

Through integration of analysis in this research, the conclusions are put forward as follows: (1) As for theoretical basis of this research, by extensively discussing diamond theory, living environment concept model and strategy, enterprise strategy, industry structure, horizontal competition, market segmentation and other related references, the researcher concludes that strategic group and market segmentation of construction companies are embodied in construction companies' own ability and endowment, cognition of customers and involvement of competitors. (2) By applying diamond theory and 3C competition model and interviewing construction operators in in-depth manner, the researcher concludes as follows.

A. What will deeply influence demand conditions are safety, convenience and beauty of environment.  
B. As cognition of enterprise strategy, construction operators of different companies hold the same opinion that the lower the cost of obtaining land and interest rate of fund are, the better; waste of materials and work overlap should be avoided as much as possible in project design and construction; construction period,

quality and budget should be effectively controlled and products should be diversified.

C. According to summary, construction operators of different companies hold the same opinion that work scope of each internal department of company must be clearly regulated; favorable fame of company should be built; trust of suppliers must be obtained; product differentiation should be strengthened; contracts concluded with customers or downstream manufacturers should be as detailed as possible.

D. As for horizontal competition, the common concern is that it is necessary to constantly develop new product life cycle; and fund, production and sale must be evaluated at the time of exiting the current strategic group or entering new strategic group.

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#### Suggestions

As precise as possible, the researcher applies research method in theoretical foundation and constructs positioned strategic group of building construction companies and research mode of market segmentation so as to explore, research and discover demand conditions, enterprise strategy, enterprise organization, horizontal competition and cognition of 3C competition model. This research is intended to assist construction companies in enhancing competitiveness, decision-making quality and performance. However, just like scientific discovery of natural science research, discovery of this research still needs further input of resources and subsequent empirical applied research so as to obtain highly efficient and believable practical tool.

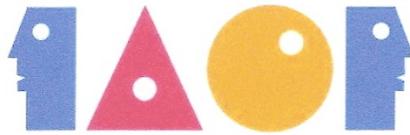
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STUDY ON THE RELATIONSHIPS AMONG SERVICE QUALITY,  
SATISFACTION, AND BEHAVIOR INTENTION OF ECOTOUR-  
ISM: USING KINMEN NATIONAL PARK AS AN EXAMPLE

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Abstract

With the implementation of the Taiwan government's tourism policy and increased travel demand by local people, ecotourism has become popular, resulting in various issues of travel quality. Upon this background, this study analyzes Kinmen National Park, investigates key ecotourism promoted in Taiwan, and explores Service Quality, Satisfaction, and Behavior Intention after travel. According to research findings, there is a significant difference between tourists' expected service quality and perceived service quality. Tourists' perceived service quality is significantly superior to their expected one. In addition, tourists are satisfied with overall service and have strong behavioral intention to revisit a place and encourage others to participate in ecotourism.

Keywords: Ecotourism, Service Quality, Behavior Intention

Introduction

Taiwan's government in recent years has continuously promoted ecotourism, which is nature-oriented travel and denotes an activity that has the purposes of natural conservation and recreational development (Ivascu, T., 2012), (Eja, E.I. et. al 2013), (Aguinaldo, R.M., et. al 2012). Many studies argued that current ecotourism promotion in Taiwan can still be improved, and service quality is the main issue that must be re

viewed (Tsai, C.H., et. al. 2012), (Hsu, T.H., 2011), (Chen, C.Y., 2011).

Therefore, through questionnaire survey, this study investigated service quality and tourists' satisfaction in Kinmen National Park, probing into tourists' Behavior Intention after travel. The research findings can serve as reference for tourism managers to improve their operations.

*Ecotourism*

Ecotourism is travel that emphasizes local resource conservation. It encompasses not only ecological and natural travel, but also activities that enhance conservation through travel. It even directly contributes to conservation by recreational revenues to maintain the local concept (Chen, C.Y., 2011), (Miljković, O., et.al. 2012). Ecotourism provides responsible travel together with a natural leisure experience, includes critical functions such as reinforcing the local economy, strengthens local residents' life quality and respect, and maintains completeness of the local traditional culture (Gheorghe, A., 2012), (Wang, Y., 2010).

*Service Quality and Satisfaction*

Since service reveals the characteristics of both production and consumption in the consumption process, for the interaction between buyers and sellers, consumers assess service performance, and this leads to perceived service quality (García-Frapolli, E., et.al. 2008), (Zeithaml, V.A., et.al., 1988). Service quality is based on a comparison between consumers' "expected service" and actual "perceived service performance". When expected service equals cognitive service, consumers' perceived service quality is satisfied. When expected service is less than cognitive service, consumers' perceived service quality is superior to satisfaction, while conversely it exhibits a dissatisfying situation (Parasuraman, A., et.al., 1985), (Parasuraman, A., et.al., 1994).

Behavior Intention (BI) represents individuals' subjective judgment of intention to adopt an action in the future (Parasuraman, A., et.al., 1991), (Chin, C.H., et.al, 2003). Individuals' Behavior Intention is derived from attitude. The relationship between behavior and Behavior Intention is much more direct than that among belief, perception, attitude, and Behavior Intention. Therefore, in order to predict a person's behavior, Behavior Intention is a more precise indicator (Khan, N., et.al. 2010), (Eramus, A.C., et.al. 2001), (Chuang, S.H., et.al. 2017). By exploring consumers' Behavior Intention, enterprises can predict consumers' needs and maintain long-term customer relationship.

## Questionnaire Survey and Analytical Results

*Questionnaire Design and Sampling*

This study employed questionnaire surveys, and the subjects were tourists who visited Kinmen National Park. It investigated tourists' travel characteristics, personal basic information, expected service quality, perceived service quality, overall satisfaction with ecotourism, and behavior intention after participating in ecotourism.

The study was based on convenience sampling. In the investigation, 420 questionnaires were distributed and 401 were retrieved, including 385 valid questionnaires. In terms of the confidence level 95%, the sampling error is less than 5%.

Analytical methods include the Chi-square Test, Factor Analysis, T test, and F test. Tables 1-5 present the results obtained.

Table 1. Result of Chi-square Test

Travel characteristics Tourist attributes	Participation frequency	Companions	Source of information	Number of days of stay
Gender	0.010*	0.000*	0.001*	0.120*
Age	0.003*	0.001*	0.000*	0.512
Occupation	0.451	0.000*	0.691	0.466
Educational level	0.001*	0.008*	0.009*	0.059*
Personal monthly income	0.000*	0.003*	0.018*	0.002*

\*: p-value < 0.05

Table 2. Result of paired samples' t-test

No.	Items	Service Quality		Gap
		Performance	Expect	
1	Sufficient facility and equipment	3.52	3.01	0.51*
2	Attractive natural and human sites	3.49	2.95	0.54*
3	Service facility matches the service provided	3.44	3.01	0.43*
4	Environment is not crowded and not damaged	3.63	2.89	0.74*
5	Facility blended in with local landscape	3.99	2.97	1.02*
6	Service personnel have neat costumes and appearance	3.69	2.59	1.10*
7	Service personnel can immediately cope with tourists' problems	4.01	2.98	1.03*
8	Service personnel show intention to listen and provide correct information	3.96	3.15	0.81*
9	Service personnel inform tourists of the activity arrangement in advance	3.76	3.05	0.71*
10	Service personnel are not too busy to neglect tourists' demands	3.99	3.13	0.86*

11	Service personnel are always polite to the tourists at any time	3.59	3.32	0.27*
12	Service personnel recognize special groups of tourists' travel needs	3.69	3.33	0.36*

Gap= gap between perceived service quality and expected one.

\*: p-value < 0.05

Table 3. F test result of tourist attributes, travel characteristics, and service quality

	Empathy	Responsiveness	Reliability
	F (p-value)	F (p-value)	F (p-value)
Gender	2.529* -0.041	3.924* -0.004	1.977 -0.066
Age	1.632 -0.311	0.629 -0.534	0.627 -0.791
Occupation	0.985 -0.412	0.240 -0.108	0.711 -0.547
Educational level	1.511 -0.124	1.640 -0.138	1.369 -0.227
Personal monthly income	1.982 -0.411	1.731 -0.066	1.325 -0.252
Participation frequency	1.313 -0.231	0.776 -0.491	2.396* -0.005
Companions	0.923 -0.539	0.506 -0.715	0.132 -0.971
Source of information	0.581 -0.715	2.478* -0.035	0.677 -0.641
Number of days of stay	1.288 -0.266	1.405 -0.193	0.856 -0.491

\*: p-value < 0.05

Table 4. Analytical result of total satisfaction and behavior intention

Items	Mean	Standard deviation
Overall satisfaction	3.82	0.70
Future intention to participate in the activ-	3.93	0.78
Convey positive messages to others	3.98	0.74

Table 5. F test result of tourist attributes, travel characteristics, satisfaction and behavior intention

		Satisfaction F (p-value)	Behavior Intention F (p-value)
Tourist attributes	Gender	2.011 (0.189)	4.718* (0.003)
	Age	1.363 (0.336)	3.097* (0.042)
	Occupation	1.123 (0.638)	3.948* (0.033)
	Educational level	3.842* (0.041)	6.892* (0.001)
	Personal monthly income	3.999* (0.032)	2.442 (0.175)
Travel characteristics	Participation frequency	6.738* (0.001)	5.951* (0.001)
	Companions	4.875* (0.006)	2.211 (0.131)
	Source of information	2.036 (0.556)	0.957 (0.319)
	Number of days of stay	1.920 (0.498)	1.190 (0.438)

\*: p-value < 0.05

### Conclusion

This study analyzes tourists' basic attributes, travel characteristics, service quality, overall satisfaction, and behavior intention of their ecological trip in Kinmen National Park. The means of tourists' expected service quality are 2.59~3.33. The means of perceived service quality are 3.44~4.01. Thus, there is a significant difference between expected service quality and perceived one. Tourists' perceived service quality is significantly superior to expected service quality. In addition, tourists are satisfied with overall service quality and have a strong intention to revisit and encourage others to participate in ecotourism.

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A FIELD STUDY ON BUSINESS INCUBATOR IN JAPAN:  
A NEW TYPE OF “CO-WORKING SPACE”

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Abstract

Numerous academic studies discussing business incubator had already been studied, but there is still no definite answer to address the questions as what are the specific roles and functions of a business incubator. Definitely, incubator plays a key role in supporting small entrepreneurs at the most crucial part of their ventures. With the combination of the business development process, state of the art designs for infrastructures down to healthy environment, business incubations will be a top priority in any country's business endeavors. This research will aim to redefine the concept of business incubators using a field study, employing a qualitative research in Japan. The researcher played as an incubated at the same time, a professional researcher who started an owned micro-business since March 2016 to May 2017. This research will be divided into three parts: First, the present situation of Japan government with its national policy for new-start businesses; Second, design ten academic research

papers about the business incubators from 2008 to 2016 to redefine the concept of business incubation and make brief about the business anthropology; Finally analysis business incubator in Japan.

Keywords : Field Study , Business Incubator , SMEs , Business Anthropology

## Introduction

The Japan Finance Corporation, (JFC) which is a big Japanese governmental corporation, was established last 2008. JFC's 2016 annual report clearly launched the Business and Management Plan (FY2016- 2018) which follows below.

### A. Goals of Business Operations:

1. Respond carefully to the needs for safety net services and provide a stable supply of funds;
2. Supply funds with priority given to Strategic Areas of Growth, etc.
3. Enhancement of community-based initiatives by exercising JFC's comprehensive capabilities;
4. Improve customer service and demonstrate policy advocacy capabilities; and
5. Design an appropriate management of credit risk.

### B. Organizational Goals

1. Enhancing branch office functions;

2. Strive to streamline back-office functions and improve operations such as through BPR;
3. Steadily promote medium-term IT planning, efficient and effective systems development and operation, and consider successive period optimized planning, human resource development, Promoting Career Development for Women;
4. Improving the workplace environment; and
5. Establishment and strengthening of risk management and compliance structures.

With the aforementioned goals, certainly, Japanese government supports strategic area for business development. The support for business industries includes the new development of start-ups, new business, business revitalization, social business, overseas expansion, agriculture, forestry, and fisheries business operators. Since JFC is a policy-based financial institution whose co-function is the provision of business loans to SMEs and business

start-ups, it will be guaranteed that support from the government will reassure entrepreneurs to take risks in commerce.

Therefore, with Japan Finance Corporation goals, the government is facing a new challenge and that is to stratify policies for business mobility. This research paper will highlight the main concerns of business ventures when it comes to the policies of Japan's government that will aid entrepreneurs in realizing their system designs. As Japan government wants to revitalize its regional economic growth through business development, a new era of palpable opportunities awaits businessmen.

## Literature Review

### *Business Anthropology*

Business anthropology is defined by professors at Wayne State University as the application of anthropological theories and practices to the needs of private organizations, as in this paper to the micro-businesses (Klepik, 2014). This type of discipline falls to the marketing and consumer behavior, organizational theory and culture and international businesses, in particular, interna-

tional market system which was further explain in the paper of Baba (2012). In a simple manner, business anthropology is the application of studying human behavior, intercultural relationships and organizational communications in a particular context, such as business. Its primary is to identify and solve the everyday challenges the consumer and capitalists face in the business cycle.

Through this, an early fragment of history showed interactions among corporations, government, institutions, private owners and individuals on 20th century became the new trend.

### *Business Incubator*

Business incubation is one of the thousand possibilities of how business can be improved. The concept of business incubation receives different perspectives in different countries including from America, Asia and Europe. In this section, the author chose ten research papers from 2008 to 2016 from Chile, Poland, China, Russia, Malaysia, Japan and many more. After reviewing those papers, a redefinition of the concept "business incubation" will be established.

N.O.Obaji, et. al. (2015) highlights former researchers that have already studied business incubation including developed and developing countries. The concept of incubations was from the United States of America, embracing by the United Kingdom and other regions of Europe. Most of the industrial world dimensions believed that business incubation is an instrument to support Small and Medium enterprises (SMEs). For the developing countries, in order to fulfill the technological needs and business competitions, business incubation is a comprehensive need for the adaptation which should be imported from developed countries.

Scholar Kathryn, I.A. (2011) in his study explored a new typology of incubation management and emerging hybrid model in Japan which includes investment in national capacity, build hundreds of incubation facilities while contextualizing within practices in the U.S. and Europe. The finding of his paper points out significant points, such as follows and this management model has emerged and is now widely accepted in Japan.

a. incubation manager plays an important role in supporting set-start;

b. the network of the incubation manager is very crucial;  
 c. policy lessons for national, regional and university level practitioners are identified  
 d. a hybrid (university-private sector, training---network support) incubation

Additionally, Marcin. S (2008) pointed out that Academic Entrepreneurship Incubators (AEI) played a relevant role in the Polish National Strategy of innovation. AEI as an entrepreneur's education suppliers offers the knowledge, know-how, and technology transfer to the market environment .

AEI is the largest network in Europe with more than 40 AEIs in the Polish universities, giving the commercial services to innovative entrepreneurs, including accounting, legal consultancy and marketing consultancy. AEI's contribution would not solve the global problems like, unemployment, finding financing for education, but their value as a tool in economic growth as well as social awareness of this type of undertaking made a successful impact. Aruna. C. and Maria, A.M.S (2012) adhered that the developing level for business incubation on Chile, becomes coalition of government and

universities with 27 business incubations still on progress. Generally, the government plays a role in seeking the internal resources to set up the angel network for incubators. Undeniably, Chile is paving its way to a more developed and highly competitive innovation, value-added industry and entrepreneurship.

The incubator in emerging marketing works in a very crucial way as it supports entrepreneurs with high expectations. However, through research, the concept of “open - system intermediaries” had been developed. Experimenting the incubators provide different typology for incubators.

The typology of the incubator can be divided to private, government, academic and nongovernmental organization sponsorship. (NILANJANA, B., et.al. 2016) Researcher such as Gustavo. T. et al (2015) found out that business incubators play an essential role in any global entrepreneurial ecosystem. Furthermore, it offers support to entrepreneurs in terms of infrastructure and management. Through the support offered to entrepreneurs in terms of infrastructure, it was concluded the reduced mortality of the risk of startup companies and can possibly

contribute to better performance of the country’s economy.

In conclusion, most of the themes are associated with services provision by the incubators and its management and it is still a gap to explore for the business incubators. What is lacking is the internal characteristics or interrelationship between business incubators and triple helix.

The highpoint of the new incubator’s business model was summarized in the former research conducted proving that incubation is related to the early phase of the venture’s life and if properly realized, incubations can be an organization to support start-ups. The research applied a case study in an Italian incubator. The results showed that business incubators facilitate both sides: the internal and external working.

The business model of the incubator is on value-added services among network with a resident of the incubator, offering knowledge to a resident of theirs. (Chiara Cantù, 2015).

Fararishah. A.K., et. al (2014) proved that Malaysia government used the development of

ICT in SMEs, thus becoming a priority of the country. In order to achieve a fully developed country by the year 2020, Malaysia government launched an established science parks, technology parks together with business incubators.

ELENA.R (2014) argued that incubators of Russia are still developing and there are more than 300 businesses in different regions of Russia where business incubator of Universities employed the supporting system to start-up businesses. However, this does not promote spin-offs and technology transfer

Table 1: Business Incubator in 2008 - 2016

Marcin. S (2008 )	Academic Entrepreneurship Incubators (AEI) is a Role in the National Strategy of Innovation in Poland
XIE.Y.,CHEN.L.(2010)	Defined Typology of Incubator
Kathryn,I.A. N.O.Obaji, M. U. Olugu, B. C.(2011)	A New Typology of Incubation Management and Emerging Hybrid Model in Japan
Aruna. C., Maria. A.M.S(2012)	Government plays a role which seeking the internal resources to set up the angel network for incubators in Chile
ELENA.R (2014)	The Business Incubator of Universities does the Supporting to Start-up in Russia
Fararishah. A.K., David. G., Afreen. H.,(2014)	The Government Treats the Development of ICT SMEs is the Top Priority for Malaysia
Chiara Cantù (2015)	The Incubator is an Organization to Support Start-up in Italy
N.O.Obaji, M. U. Olugu, B. C. Obiekwe (2015)	Business Incubation is Played as a Policy Instrument to do Support to SMEs.
Gustavo.T.,Rosley.A,Robert.E.C.O Osvaldo. L.Q., (2015).	The Business Incubators offer to support to entrepreneurs in terms of infrastructure and management
NILAN-JANA.B.,OLGA.B.,ELENA.V.,AARON.C.,ANITA.M.(2016)	The Typology of the Incubator can be divided to private, government, academic and nongovernmental organization sponsorship.

Source : Own elaboration

processes. There is still a lack of the commercial stimulus and entrepreneurial approach in the relationship between universities and business incubators, as well as business incubators and residence owners.

Increasingly, the objective, typology and service of the incubator are also being studied. Typology can be divided to:

- a. Business Innovation Centres;
- b. University Business Incubators;
- c. Corporate Private Incubators;
- d. Independent Private Incubators;
- e. Virtual Incubators. The objective is offered as the obligation of resources and service.

### Study Method

#### *Field Study (Observation) with Participation*

Natasha, M, et. al. (2005) made a definition of what a participant observation is. It is a comprehensive perspective, a qualitative method which goes deeply to a research and a root in traditional ethnographic research. Researchers conduct a study through observation alone or by an observation and a participating at the same time.

The used method is distinctive. The researcher approaches participants in their own environment rather than having the participants come to the researcher. In general, it is an “insider” who explained what the life is in a business incubation. Furthermore, it is an objective viewed by informal conversation, interaction with members, recording in the field notes, it may also be pertinent and thus desirable to document by mass media such as radio or television as information and messages.

This study focuses on a participant observation of a Taiwanese entrepreneur who did his micro-business in Japan from 2016 March until 2017 May. The researcher played a full participant in the case context as three roles; professional, ethnographer and Historian. Otherwise, it was the participant as an observer also the observer as a participant, thus using the reciprocal relationship. The researcher attended the whole process of entrepreneurship, from the company set up until the owner decided to finish the company.

#### Data Analysis

After the field study, now in Japan, a new style incubator which is called “co-working”, “co-space”.

The research found that there are ten co-working as an incubator in Chiba prefecture, normally, the business model of them mainly charges the incubates with the entrance fee as the member system in order to join the incubator. They are private owners, and generally, the typology is private member system.

The main Incubatees are SMEs which is set up for less than one year, individual self-hiring people ; writers, a consultant for business, a language teacher. The function of them can be divided to ; a. set-up business, b. business strategic, c. financial, d. marketing channel, e. manpower, f. legal, g. accounting, h. overseas marketing, i. net-working. Set-up business: business model's advice, business planning support.

Business Strategy: the professional consultant supporting.

Financial: offer the information of governmental found for new business

Marketing channel: introduce the marketing channel to incubates.

Manpower: HRM system advice

Legal: the business law advice

Accounting: IPO, M&A advice

Overseas marketing: overseas market information advice

New-working- hold the seminar, incubators can exchange with a different area.

However, the comparison of incubators will show by the following table in order to explain the cases in this research.

Table 1: Main typology of incubator in Chiba prefecture

Incubator/ 10 case	Location	Entrance Polity	Typology
M	Futtsu City	member system	private- LTD
K	Kashiwa city	member system	private- adventure
C	Chiba city	member system	private-LTD
S	Chiba city	member system	private-LTD
D	Matsudo city	member system	private-LTD
N	Kashiwa city	member system	private- LLC
B	Matsudo city	member system	private-LTD

F	Matsudo city	member system	private-LTD
K	Urayasu city	member system	private-LTD
O	Sakura city	member system	private-LTD

Source: this research

Table 2: Main service of Incubator

Case	share working space	share office service	Profession business consultant service	net working	public image
M	v	v	x	v	x
K	v	v	x	v	V
C	v	v	x	v	x
S	v	v	x	v	x
D	v	v	x	v	x
N	v	v	x	v	x
B	v	V	x	v	x
F	v	V	x	v	x
K	v	V	x	v	x
O	v	V	x	v	x

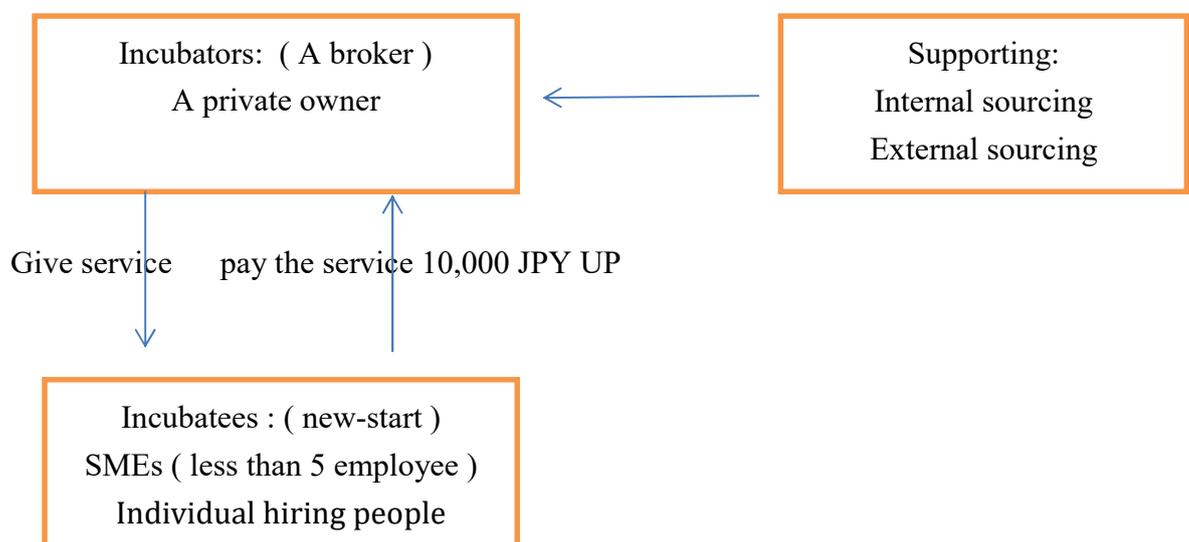
Source: this research

Table 3: Main dimension of Japan incubator in this study

Dimension	Japan
Strategic Focus	economic development

Sponsorship / Incubator Funding	private funding
Type of Incubate Business	individual
Service Mix	tangle, value adding service
Financial Services	Provides the consultant as the outsourcing
Role of Government	High-Supporting

Source: by this research



### Conclusion

There is a new style of business incubator that is “co-working

space “as a broker between the new-start business and it supporting. The incubator mainly offers the co-working space to the incubators, via offering the service with charge. The

business incubator gives the intangible and tangible service to incubate and the business incubators who are primarily private owners. The national policy of Japan is mostly for economic orientation while role of the government is mainly to support the new-start especially the regional new business.

This design of avenue can positively increase the economic welfare

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- of a country if given the proper training and time. Designs for incubation system should be part of educational business institutions to train entrepreneurs to do better in their business careers. This is not a new trend in the business industry, but with the appropriate guide, incubation can be the new step for a successful opportunity for any country's positive endeavor.
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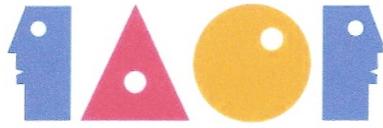
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A STUDY ON THE MANAGEMENT STYLES AND JOB  
SATISFACTION OF EMPLOYEES AT TAIWAN'S  
ARCHITECTURAL FIRMS

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Abstract

Given the intensifying level of business competition today, companies are constantly thinking about how to ensure that management and sales performance are not affected. The factor of management style accounts for 45% to 65% on whether an organization succeeds or not. At the same time, job satisfaction also is an important factor that influences organizational performance. Therefore, whether a company or an organization can implement the right management style and whether it understands how employees feel about their work is an important topic. In recent years, when we review Taiwan's industry development, it is found that Taiwan's economic development is sluggish while the available resource of land is gradually diminishing. However, the number of architects starting their firms has increased instead of decreasing. Given such a dilemma, architectural firms must raise their management performance even more by establishing appropriate management styles and viewing employee's job satisfaction with importance to achieve the goals of incentives and management and to raise competitiveness. In order to formulate the appropriate management styles and job satisfaction of employees at Taiwan's architectural firms, this study researched 310 interviewees working at Taiwan's architectural firms. The results indicate: interviewees believe that the management style of architectural firms should implement the two styles of "participatory motivation" and "goal and performance orientation". Also, these two management styles can significantly influence job satisfaction positively. This study also recommends that architectural firms should adjust management styles according to the backgrounds of different employees.

Key words: Architectural Firms, Management Style, Job Satisfaction

## Introduction

Global business competition is intensifying today. Given the global economic downturn and the increasingly conservative attitude of consumers, companies must constantly consider how to ensure that management and sales performance are not affected. Peter and John (2004) think that employee's job satisfaction is an important factor in the determination of organization performance. When employee's satisfaction towards an organization or company is low, employees will start looking for new jobs and affect organization performance. Leightley and Wan (2006) also thinks that job satisfaction will affect organizational performance. However, on whether an organization succeeds or not, 45%-65% of the factors are determined by an organization's management style (Wu, Tsai, Fey & Wu, 2006). Therefore, an organization's management style plays a very important role in influencing job satisfaction of employees and performance.

Lau and Lemahieu (1997) found that an organization's leader should change from an authoritarian role to

become the catalyst and inquirer of employee opinions in an organization. This will allow communication between the managers and those managed to become smoother, and job satisfaction of employees will also increase. Morrison (2004) and Naeyc (1996) jointly promoted the idea that for an organization to have outstanding performance, the leader must become an expert who can "negotiate and discuss" business affairs with all colleagues and establish a "learning", "consultative" administrative management model in order to succeed. Wintzky (1992) also mentioned that management style is a key indicator in the assessment of an organization's performance effectiveness. The reason is because a "democratic" management system allows employees to feel fully respected and can allow them to provide opinions, give them a sense of participation and mission towards the organization, and can allow employees to generate better performance. Thus, it is known that management style is indeed an important factor that does affect job satisfaction and performance. Management style should be transformed from an authoritative management style to a democratic leadership to respond to

the changing time in order to lead an organization to constantly innovate and transform and for internal communication channels and ability to become smooth. This will allow an organization to obtain better performance.

When we review Taiwan's industry development, it is found that Taiwan's economic development is sluggish while the available resource of land is gradually diminishing. However, the number of architects starting their firms has increased instead of decreasing. According to data from the Construction and Planning Agency (CPA), the Ministry of the Interior of the Republic of China (2017), as of March 31, 2017, there are a total of 3,921 architectural firms, 4,038 architects, and workers in this industry exceeding 200,000 in Taiwan. The overall Taiwan management environment is worsening; how to find a sustainable development direction given this change in the overall environment has become an important issue that architectural firms must face. On this issue, this study thinks that at the same time of raising the competitiveness, in addition to facing the overall environmental turndown and strengthening one's potential, what is more important is the need to raise management

performance. In order to highlight the characteristics of architectural firms and to establish a competitive advantage through management, architectural firms should formulate reasonable and appropriate management style and view the employee's job satisfaction with importance.

This is to achieve the goals of motivation and management and to raise competitiveness. However, what is interesting is even though management style and job satisfaction are so important, there has been very few discussion of these topics on business affairs of architectural firms on these topics. Most have cited past management styles and the management's subjective views to measure management performance. This has made it difficult for architectural firms to look at future market competition. Therefore, under the demands of management performance in the knowledge economy era, if a management style and job satisfaction measurement indicator that is practicable and with explanatory power can be formulated, it will be a key to raise management performance continually at architectural firms.

Literature Review

*Management style*

For organization function to be exerted, different types of management styles must be considered and adopted. This study has organized three types of management models for reference:

#### (I) Tannenbaum-Schmied Management Model

This model is oriented towards tasks (results) and people (relationships). However, these two orientations are mutually conflicting. The more one cares about the tasks, the more people are ignored and vice versa. According to this type of theory, four types of management styles are still produced: 1. Authoritarianism: Managers make the decision, gives the command, does not consider opinions of other members, members can only cooperate according to the orders to execute and give out. All they have to do is follow orders. 2. Elitism: Managers consider themselves to be the outstanding and few elite members who believe they understand the situation. They have made the decision before consultation and try to persuade members. 3. Consultation: Before managers make decisions, they would consult for members' opinions and broadly consider these opinions. 4. Democracy: Managers make decisions based on

the basis of consensus or majority opinions.

#### (II) Blake and Mouton Management Grid

Blake and Mouton (1964) use the two indicators of concern for people and concern of results and proposed five management styles, which are listed below: 1) Impoverished Management: this management style care little about the results or people; this is no management per se, and the leader has no contribution to the organization. 2) Authoritarian Management: imposes strict control on people; to achieve the goal, it does not matter if one's dignity and values are sacrificed. 3) Relationship oriented management: the leader has little concern for the organization's tasks, tries to satisfy needs of its members, which is achieved by ignoring the organization's goals. 4) Balanced management: considering the needs of members and the organization and uses the compromise style to resolve conflicts. 5) Integrated management: Giving high level of concern to both results and people. The leader thinks that the organization's needs and people's needs are both equally important. It is featured by organization members jointly participating with group making decisions.

### (III) Likert's management systems

Likert (1967) proposed four different types of management style: 1. Exploitive-authoritative: managers often use authoritative, punishing style to stimulate group member behavior. Its communications is top-down with very few interactions among themselves. 2. Benevolent-authoritative: managers use the carrot and stick approach to stimulate members. Communications are frequently top-down with very few cooperative teams existing. 3. Consultative: managers always consult with members when making decision and use reward to stimulate members. 4. Participative: managers use participatory and reward approach to stimulate members; members interact closely, cooperative teams are formed within the organization, members can fully participate in decision making, and goals are set based on team participation.

### *Job Satisfaction*

Job satisfaction is the reaction of employees to the situation at work. Therefore, job satisfaction is an extremely important indicator to both the organization and workers. This study has organized the theories of three categories frequently cited to explain job satisfaction. They are as

follows: (I) Using satisfaction of needs as measurement to satisfy the needs for a person for money, status and achievement as the content of the theories: mainly the Needs Hierarchy theory (Maslow, 1943), ERG theory (Alderfer, 1969) and Demand Satisfaction theory (Porter & Lawler, 1968); (II) Measured by actual value: Expectancy theory (Vroom, 1964), Discrepancy theory (Porter, 1961), Equity theory, etc. (Adams, 1963). (III) (3) others: Two-Factor theory (Herzberg, 1966), Three-Factor theory (Hoy & Miskel, 1982), System theory, Etc. (Wernimont, 1972).

Maslow believes that human needs are ordered from low to high and moves up step by step. Only after satisfying lower level needs can one seek to pursue those at higher levels. This perspective has been widely applied to all types of studies on human psychology and behaviors. However, in recent years, some studies point out that human psychological satisfaction need not to go from satisfying lower level needs before moving to those at high level; instead, it can jump directly to higher level needs. ERG theory believes if the needs of human beings at each level are not satisfied, the desire for that particular needs will grow. If that need is constantly not being sat-

isfied, then it is hard to escape from that need. The Two-Factor theory points out that job satisfaction and job dissatisfaction are controlled by the two factors of motivating factors and hygiene factors respectively. Factors which are more internal in nature are called motivating factors and those more external in nature are called hygiene factors. Therefore, the Two-factor theory is a theory that is based on job satisfaction being jointly determined by one's internal and external factors. System theory believes that there are two variables which affect job satisfaction. One is the external environmental variable, and the second is the inner personal variable. Equity theory believes that the worker will compare the amount invested in his/her work (such as age, educational background, effort, and so forth) and the ratio of return received from work (salary, promotion opportunities, benefits and so forth) with others and produce a fair or unfair status. Expectation theory believes that the motivation for a person to seek a certain goal or take certain action is mainly determined and evaluated by the benefits and interests that can be obtained upon achieving the goal or taking that action. If the benefits and interests exceed what is currently possessed, then he/she will actively seek it.

Discrepancy theory believes whether a person is satisfied with his work or not can be determined by the size of the discrepancy between what he/she "actually gets" and "expects to get". If the discrepancy between the expected and actual is 0, then this means that the current job is acceptable. If the actual is higher than the expected, then that person's job satisfaction will increase.

## Research Methods

### *Research Framework*

This study is done based on the views influencing job satisfaction by Leightley & Wan (2006), Wu, Tsai, Fey & Wu (2006), which list management style as an important factor which influences job satisfaction of employees at Taiwan's architectural firms. Secondly, in order to understand whether there are any differences that exist in the population background (gender, marital status, age, educational level, working year and title) in terms of management style and job satisfaction, this study also lists population background within the research framework. In terms of the topic and item design regarding management style, this study refers principally to the organization characteristics POC scale

proposed by Miller (1988) to measure the management styles at Taiwan's architectural firms. In terms of job satisfaction, the scale proposed by Saane, Sluiter, Verbeek & Frings-Dresen (2003) was referenced to supplement the author's observations regarding Taiwan's architectural firms in order to design suitable topics and items to measure employee's job satisfaction. On the relationship of architectural variables, this study hypothesizes that Taiwan's architectural firms' management style will

influence job satisfaction of employees. Employee's population background will have significant differences which exist in terms of management style and job satisfaction. To measure the management style and job satisfaction, this study uses the Likert scale to measure the views about the management style of employees at architectural firms (5 for strongly agree, 4 for agree, 3 for neutral, 2 for disagree, 1 for strong disagree) (see Figure 1).

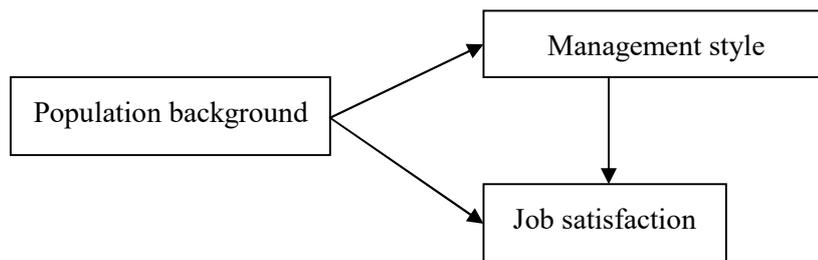


Figure 1. The Chart for this Study's Framework

*Interviewees and Data Collection Method*

In this study, e-mails with online questionnaire websites attached were sent to architectural firms registered on file throughout Taiwan with the Taiwan Architects Association.

Relevant staff at architectural firms that received the e-mail can

either use computer or mobile phone to go online to fill out questionnaires. The survey period was from January 30 to March 30, 2017, and a total of 310 effective questionnaires were returned.

Research Findings

*Interviewees Background*

The majority of interviewees of this study are males (N=192, 61.9%), with those aged 31-40 being the most at 152 (49%), followed by those between 41-50 years old (N=66, 21.3%). In terms of education, those with university degrees are the majority, with 174 people (56.1%), followed by those with graduate degrees (N=92, 29.7%). In terms of years of service, there are 175 people (56.5%) with over 10 years of service and 75 people (24.2%) at 4-6 years of service. In terms of work titles, 132 people (52.8%) are management staff, with 53 assistants (21.2%), and 27 designers (10.8%).

#### *Factor Analysis*

This study mainly adopts the principal component analysis for management style and job satisfaction factors, using the varimax for rotation. According to the standards proposed by Kaiser (1966), the standard for choosing factors is eigenvalues greater than 1 (quoted from Wu, Ming-Lung, 2008). According to Kaiser's viewpoint, the greater the value of the KMO, the more common factors there are between variables, the more suitable they are for factor analysis. If  $KMO > 0.9$ , then it is marvelous, while if  $KMO > 0.8$ , then it is meritorious.

#### (I) Management Style

The KMO value of the management style scale in this study is 0.939, which Kaiser considers to be marvelous. The Bartlett ball test = .000, meaning that the management style scale is very suitable for factor analysis.

It can be understood from the factor loading (FL) of the factor analysis summary table that two factors can be extracted for management style. The top three high scoring items for factor one's factor loading are "9. Different motivation will enhance and do not conflict with each other" (FL=0.830), "5. The supervisor will ask the staff for advice and adopt them" (FL=0.822), and "3. The supervisor is always able to make employees feel fully supported" (.811) respectively. This study believes that the factor one's content is biased towards participative. When managers use participation and rewards to motivate members, members can fully participate in the decision making by using the team participation to set goals. Therefore, factor one is named as a participatory motivation (see Table 1 - all Tables are at the end of this article).

The top three high scoring items for factor two's factor loading are "37. All my colleagues in the firm are fully receptive to the objectives of the organization" (FL = .877), "36. All colleagues in the firm are striving to pursue high performance goals" (FL = .882), and "38. Informal and formal groups within the firm work together to pursue organizational goals" (FL = .793) respectively. This study believes that the factor two's content is biased towards the pursuit of goals and performance. Therefore, factor two is named as goal and performance orientation.

## (II) Job Satisfaction

The KMO value of the job satisfaction scale in this study is .902, which Kaiser considers to be marvelous. The Bartlett ball test = .000, meaning that the job satisfaction scale is very suitable for factor analysis.

It can be understood from the factor analysis summary Table that one factor is sufficient to represent the meaning of the entire job satisfaction. This study also named the top three items based on factor loading (see Table 2).

The top three high scoring items for factor one's factor loading are "8. Getting along with colleagues" (FL=.734), "2. Employee benefits system" (FL=.723), and "7. At work I can use my own way to deal with things" (FL=.704) respectively. Therefore, this study names factor one as benefit oriented.

## *Regression Analysis*

To understand whether management style will influence job satisfaction, this study proposes using the regression model and to conduct analysis. Based on regression analysis, the results indicate that participatory incentives, goals and performance orientation will have a positive significant influence on job satisfaction. Among these, the influence of participatory incentives is stronger ( $\beta=.322$ ) followed by goals and performance orientation ( $\beta=.298$ ) (see Table 3).

## *One Way Anova*

### (I) One Way Anova in Management Style

There exist significant differences in the management style with regard to the marital status, age and years of service among interviewees. Those who are married identify bet-

ter than those single regarding management style. Those who are 51 years or older and those between 41-50 years old identify with management style more than those aged 31-40 and below 30. Those with years of service of 10 years or more and with 3 years or less identify with management style more than those with years of service between 4-6 years (see Table 4).

#### (II) One Way Anova in Job Satisfaction.

There exist significant differences in the job satisfaction with regard to the marital status, age and years of service among interviewees. Looking deeper into the results, female interviewees have overall higher job satisfaction than male interviewees. Those married have higher job satisfaction than those who are single. Interviewees that are 51 years old or above, 41-50 years old have higher job satisfaction than those that are 31-40 years or, those under 30. In terms of education, those with graduate degree or above have higher job satisfaction than those who graduated only from high school or vocational school. In terms of years of service, those with 10 years or more have higher job satisfaction than those with 4-6 years of service (see Table 5).

## Recommendations and Conclusions

### *Conclusion*

(I) For Management style, two factors of participatory incentives and goals and performance orientation can be extracted.

Currently, in the era where concepts of employee consciousness and benefit are becoming increasingly important, respecting employees and providing timely incentives have become the consensus of business management today. However, in the past, there have been few studies done that explored the management style of employees at architectural firms. If there is lack of survey data, it will become difficult to achieve a balance for the views of management and employees. In this study, with architectural firms as targets of study, a discussion of 310 interviewed architects, managers and assistants is done to study what the interviewees favored for management style. This is the main objective of this study.

One can understand from the results of factor analysis, based on the scores of interviewees towards management scales that the two factors of participatory incentives and goals and performance orientation

can be extracted for management style. In the factor of participatory incentives, what employees favor is the expectation that supervisors can consult the views of employees more frequently and adopt them, to fully support employees, and to adopt a wide range of incentives to encourage them. In terms of goals and performance orientation, interviewees generally can accept organization goals and work together to pursue high level of performance. From such results, this study believes that these employees at architectural firms fully reflect the heartfelt wishes of employees and corporate governance in this era. Not only do they look forward to supervisors respecting employees and adopting their views while encouraging them with a wide range of approaches; at the same time, they are also able to consider organization goals as the most important and combine the internal resources at the architectural firms to pursue maximum performance. Therefore, the recommendation for architectural firms is that for management style, they can adopt the approach of respecting employee's views and provide a wide range of incentives while jointly establishing organizational and personal goals to jointly create the

maximum performance for managing the firms.

(II) Management style significantly influences employee job satisfaction.

Regression analysis results find that the two factors of management style significantly influence employee's job satisfaction. Among them, participatory incentives' influence is stronger followed by goals and performance management. This study believes that possible reasons including the following: employees favor supervisors listening to their viewpoints more, to truly adopt employee views when making decision, and adopting wide range of incentives to encourage them. These will all increase the employee morale and satisfaction at work. Secondly, with regard to the reason why goals and performance orientation will also positively impact job satisfaction, this study speculates that possible reasons may be the following: if employees of architectural firms can jointly work and pursue high level of performance, there will naturally be higher job output and incentives. Also, it can better allow employees to approve of themselves at work and feel that they can show their ambition and realize themselves. At the same time, this will lead to higher overall satisfaction. Therefore, this

study believes that in order to increase the job satisfaction of employees at architectural firms, the two-pronged approach of using the internal respect of employees and wide range of incentives together with trying to increase the passion of employees pursuing organization goals and performance to elevate employees' self approval and sense of self realization at work.

(III) Architectural firms should adjust management style and experience of work for employees with different backgrounds.

According to One way ANOVA results, it can be found that married interviewees identify more with management style than single ones. Those aged 51 years old or above, between 41-50 years old identify more with management style than those aged 31-40 and 30 or below; they also have higher job satisfaction. Interviewees with 10 or more years of service identify more with management style than those with 4-6 years of service while also having higher job satisfaction. Interviewees with master degrees or above have higher job satisfaction than those with only high school or vocational school degrees. It can be understood from the abovementioned results that interviewees who are married, older,

those with more seniority and higher degrees identify more with management style of architectural firms and also have higher job satisfaction.

Based on such results, this study believes that there are two possible reasons for it: 1) Interviewees with more seniority and who are older have stayed at the firms for longer periods of time and are more familiar with the architectural firms' management style. It is natural to have more identification; 2) those who are older with more seniority and higher degrees in the architectural firms are mostly supervisors with higher salary. They have the rights to formulate the management style and also enjoy better compensations; therefore, it is easier to have higher level of identification and job satisfaction. Because the younger interviewees have entered the architectural firms for a shorter period of time and many are still in the learning and honing stages. Thus, this study recommends that architectural firms should care more about these employees, listen to their thoughts about work and adjust management style and how incentives are provided based on their needs in the appropriate manner in order to increase the morale and productivity of the young employees in architectural firms.

### *Suggestions*

(I) Include communications into every day routine work.

This study recommends that supervisors can treat communications as obligatory work that should be fulfilled every day or as an important to do task in order to strengthen communications between architectural firms and employees. Supervisors can arrange the best timing to communicate with colleagues based on the work situation every day. Time permitting, supervisors can regularly allocate 15 minutes every day to talk with subordinates within the departments on a rotation basis. In addition to being able to understand the current situation of each employee, this can also provide timely responses and feedback to colleagues' opinions and motivate employees. This study recommends that in addition to regular communications with employees to understand relevant matters, occasionally leapfrog communications can be arranged to talk with subordinates two or three layers lower than oneself. This can ensure that one isn't completely unable to understand the actual work situations of first line employees; sometimes, unexpected rewards may be obtained and morale of employee may be motivated.

(II) Take appropriate communication channels.

Based on the author's findings from practical experiences and observations, there are many supervisors who are willing to communicate with employees. However, whether this communicate is effective, whether the content of communications is understood by the other side, and whether the use of communication channels is appropriate are issues. Based on this point, this study recommends that supervisors can first examine their strengths and then select a communication channel suitable to themselves; in addition, selecting the method that employees can more correctly receive one's message to do the communication. For example, certain forms of communications are only suitable by face to face communications. These include the conflicts the supervisor hopes to solve within the organization and announcing certain formal news. Some communications are suitable for casual nature, such as dinners from time to time so colleagues can talk about their lives.

(III) Establish channels for expression opinions to implement feedback mechanism.

This study believes that there are certain things which employees

do not find convenient to mention to supervisors or may worry about expressing opinions that will draw the attention of supervisors. Regarding this point, this study recommends establishing suggestion boxes and/or employee hotlines, etc. No matter

what the form is, the key is that employee can remain anonymous in expressing their views. Secondly, if opinions are provided by employees, supervisors must view these with importance and provide timely feedbacks.

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Table 1. Summary of Management Factors

Item	Factor 1	Factor 2
1. The supervisor has a full sense of trust in the staff	.782	.392
2. The employee has a full sense of trust in the supervisor	.791	.233
3. The supervisor is always able to let employees feel fully supported	.811	.102
4. Staff feel that they can easily discuss the work with the supervisor	.738	.362
5. The supervisor will ask the staff for advice and adopt them	.822	.222
6. The firm will use bonuses and promotions as incentives	.732	.193
7. The firm's incentive approach is one that is jointly thought out by everyone	.771	.342
8. Employees agree with the firm's business objectives and are willing to go all out	.772	.262
9. Different incentives will enhance and do not conflict with each other	.830	.112
10. Employees all have a sense of responsibility for achieving the firm's objectives	.745	.333
11. The firm is harmonious, cooperative and trusting each other	.634	.252
12. Employees are satisfied with the organization and management	.673	.291
13. In order to achieve the objectives of the firm, personal and team interact and communicate frequently	.745	.310
14. The direction of the firm's communication is up, down and among peers	.693	.242
15. The supervisor is willing to give the staff the information they need	.773	.223
16. In the firm, the staff and the supervisor have appropriate communication channels	.664	.195
17. Employees feel that they are responsible for communicating with the supervisor on their own initiatives	.692	.293
18. The firm requires the employee to provide the correct job information	.784	.243
19. The communication channels within the firm are smooth, and no additional pipelines are required	.610	.164
20. The communication among colleagues in the firm is good, and information is not held back because of competition	.592	.343
21. The relationship between the supervisor and the staff is friendly and intimate	.683	.251
22. The supervisor understands the issues faced by employees	.637	.242
23. The views of the supervisor and the staff on each other are correct	.745	.116

<b>Item</b>	<b>Factor 1</b>	<b>Factor 2</b>
24. Cooperation among colleagues is close and friendly, and trusts one another	.687	.263
25. The firm can display team spirit to complete the work	.673	.463
26. The structure of the firm can make everyone be influential	.557	.434
27. The decisions within the firm are determined by the participation of all employees	.674	.235
28. In making the decision, the firm has full and correct information for reference	.553	.284
29. Policymakers can really grasp the employee's problems	.534	.274
30. All staff can use their expertise and technical skills when making decisions	.602	.336
31. Decision-making is usually determined by the hierarchy with the most adequate and correct information	.706	.563
32. The decision-making process can be motivated by the actual performers	.803	.436
33. Employees can participate in decision-making related to their own work	.623	.434
34. The firm makes decisions based on group decision making	.730	.252
35. In addition to emergencies, the firm usually adopts a participatory approach to set goals	.559	.120
36. All colleagues in the firm strive to pursue high performance goals	.372	.882
37. All colleagues in the firm are fully receptive to the objectives of the organization	.333	.877
38. Informal and formal groups within the firm work together to pursue organizational goals	.523	.793
39. Leaders in the firm want organizations to achieve very high performance goals	.212	.693
40. The firm can provide the on-the-job training I need	.182	.729

Table 2. Summary of Job Satisfaction Factor Analysis

Item	Factor 1
1. I can sense the firm's workload and salary ratio	.672
2. I can sense the employee benefits system in the firm	.723
3. I can sense the employee promotion system within the firm	.693
4. I can sense the performance appraisal system in the firm	.540
5. I think that in my current work, I can improve my ideals and aspirations	.482
6. I feel pleasant working with my supervisor	.693
7. At work I can use my own way to deal with things	.704
8. I can sense getting along with my colleagues	.734
9. I have a sense of accomplishment in my current job	.628
10. My work ability has the trust and approval of my colleagues	.520
11. I can sense my communication with my supervisor	.492
12. The family identifies with my work in the firm and approves of it	.462
13. I feel that my work has contributed to the society	.553
14. I feel that the work I am doing is respected by the community	.520
15. I am confident of my own development within the firm	.492

Table 3. Summary Table of Management Style Predicting Job Satisfaction Regression Analysis

	Unstandardized coefficient		Standardized coefficient	t-value	Significance
	B	Std. Error	Beta		
Constant	.262	.130		2.022	.044
Participatory incentives	.302	.051	.322	5.898	.000***
Goal and performance orientation	.279	.050	.298	5.612	.000***
R square			.755		
Sum of Squares			97.946		
Degrees of freedom			2		
F value			243.876		

Significance	.000***
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\*\*\*  $p < .001$

Table 4. Summary Table of One Way Anova in Management Style

	Item	Average	Standard Deviation	F-value	p-value	Post hoc analysis
Marital Status	Single	3.07	0.63	20.588	.000***	
	Married	3.42	0.57			
Age	30 years old or below 30	3.14	0.55	8.103	.000***	51 or older, 41-50 years old >31-40 years old, 30 years old or below 30
	31-40 years old	3.09	0.67			
	41-50 years old	3.38	0.48			
	51 or older	3.60	0.62			
Years of Service	3 year or less	3.37	0.50	5.348	.001**	10 years or more, 3 year or less >4-6 years
	4-6 years	3.04	0.62			
	7-9 years	3.22	0.71			
	10 years or more	3.42	0.58			

\*\*  $p < .01$ , \*\*\*  $p < .001$

Table 5. Summary Table of One Way Anova in Job Satisfaction

	Item	Average	Standard Deviation	F-value	p-value	Post hoc analysis
Gender	Female	3.55	0.61	5.397	.021*	
	Male	3.36	0.57			
Marital Status	Single	3.21	0.58	28.122	.000***	
	Married	3.59	0.55			
Age	30 years old or under 30	3.19	0.46	9.242	.000***	51 or above, 41-50 years old >31-40 years old, 30 years old or under 30
	31-40 years old	3.29	0.62			
	41-50 years old	3.54	0.52			
	51 or above	3.76	0.57			
Education	High school or vocational school	3.12	0.50	4.25	.004**	Graduate School or above > High school or vocational school
	Junior college	3.32	0.68			
	University	3.42	0.57			
	Graduate School or above	3.72	0.48			
Years of Service	3 year or less	3.39	0.49	3.609	.014*	10 years or more >4-6 years
	4-6 years	3.27	0.59			
	7-9 years	3.40	0.59			
	10 years or more	3.59	0.63			

\* $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

