

THAI CREATIVITY IN INTERIOR DESIGN:
A CROSS-CULTURAL EXAMINATION OF PRACTITIONER EVALUATIONS ON
CREATIVE DIMENSIONS IN ENTRY-LEVEL PORTFOLIOS

By

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To my beloved family

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Abstract of Dissertation Presented to the Graduate School
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Recently, government, corporate, and educational leaders have repeatedly identified the importance of creativity in global competition. In unison, research studies are beginning to explore creativity in a cross-cultural context; however, much work remains to examine domain-specific creativity. In the area of interior design, although creativity is highly valued and essential for problem-solving, it has not been fully investigated in the setting of practice and education across cultures.

The present dissertation research explores discipline-specific creativity in a cross-cultural context. More specifically, this study focuses on assessments, attributes, and definitions of creativity in interior design, through Thai and U.S. practitioner evaluations of entry-level portfolios as creative design products. Based on the research focuses, the research questions addressed are: what do designers consider to be creative in portfolios, how do designers define design creativity, and how do cultural influences affect the assessment of creative portfolios and the definition of creativity?

To answer these questions, the study employed a mixed-methods design, involving survey and semi-structured interview methods, and a field-based research

strategy. A sample of participants consisted of 20 Thai and 16 U.S. senior-level design practitioners. A sample of portfolios contained 12 Thai digital portfolios, exhibiting high, medium, and low creativity. In the data collection, practitioners individually assessed the portfolios on six assessment criteria: novelty, appropriateness, technical merit, aesthetic appeal, overall creativity, and hiring potential. The evaluation method drew on Amabile's Consensual Assessment Technique, which relies on judges' agreement. After the portfolio assessment, designers responded to interview questions regarding their own assessment criteria and concepts of creativity. Interview responses contributed to a qualitative understanding of the portfolio evaluation and creativity perception.

The study findings support the discipline specificity and universal perception of creativity in interior design. Endorsing the general consensus of creativity, Thai and U.S. designers both viewed novelty and appropriateness as primary aspects guiding the assessment of creative portfolios and influencing the perception of creativity. Technical merit and aesthetic appeal, as domain-specific criteria, also played important roles in indicating overall creativity in portfolios. Most importantly, practitioners confirmed that creative portfolios, along with applicants' work capability, communication skills, and personal characteristics, could enhance the candidates' employment potential.

CHAPTER 1

INTRODUCTION

Research Background

To a very large degree, creativity made the world we live in. Remove everything about us that was not the product of the creative mind, and we would find ourselves naked in some primeval forest. Moreover, each culture and civilization on this planet is defined by the accumulation of creative products generated by the humans that have occupied this globe.
(Simonton, 2006, p. 490)

Dean Keith Simonton, a leading scholar in psychology, speaks to the universality of creativity in the above excerpt from *The International Handbook of Creativity*. Today, we are acutely aware that creativity plays a crucial part in our world. Not only was the past role of creativeness in civilizing each culture essential, but its recent role in contributing to national and global advancements in arts and sciences is also vital. With creative talent, human innovations in research and application move the world forward.

In earlier times, individuals around the world created a number of ideas and artifacts improving human lives and increasing our knowledge. For example, in China in the early 1st century, Cai Lun invented the paper-making process; in England in the 1680s, Sir Isaac Newton formulated the universal law of gravity; and in the United States in the 1870s, Thomas Edison created the light bulb. Traditionally, the concept of creativity appeared associated with innovation. People often regarded inventors with breakthroughs as creative talents. Nowadays, however, we have gained more insight into creativity and realize that it is not only innovation but also adaption that takes part in creative outcomes (Kirton, 1976; Sternberg, Kaufman, & Pretz, 2002). In the 1790s Ludwig van Beethoven, one of the world's most renowned composers, adapted sonata form and motivic development of the classical music inspired by Haydn and Mozart, and proposed a new style of the classical music with an intense level of emotionality. In the

1860s Louis Pasteur developed the germ theory of disease and vaccine therapy based on Edward Jenner's discovery of using cowpox to vaccinate humans (Meadows, 1987). In the 1950s Chien-Shiung Wu, one of the 20th century's most outstanding physicists, changed the way that physicists viewed the structure of the universe by disproving the law of conservation of parity and supporting the revolutionary concept of beta decay (Byers & Williams, 2006). Similar to inventors, by adapting ideas or artifacts that already existed, these adaptors could produce creative products to advance the world.

In our time, many scholars in different fields worldwide have suggested that not only geniuses possess creative talent, but everyone can be creative to some extent (McWilliam & Dawson, 2008; Richards, 2007). Leslie Lamport, a famous American computer scientist, elaborated that a creative idea emerges when he is "looking at the right problem, at the right time, having the right background" (Shasha, 1995, p. 138). This implies that, without a rare ability, people can produce a creative outcome by having motivation. Ruth Dineen (2006), the director for a study into the promotion of learner creativity in UK and Chinese art and design contexts, has developed policies for the creative education based on a notion that everybody has inherent and promotable creative ability. Ai-Girl Tan (2004), a prominent Singaporean psychology scholar, has also emphasized the individual's innate and trainable creative potential in her framework for Singaporean school teachers to foster students' creativity.

Accepting that everyone can be creative, countries across the world have tried hard to promote their people's creative potential in order to refine their culture as well as to elevate their global success. Japan becomes a good example of using Japanese creative ability to advance the country's business. After World War II, industries in

Japan depended on two systems: the government-led and grass-roots machineries. The latter machinery played the more critical role in developing consumer electronics that later became internationally renowned (Nakayama, Bouton, & Pecht, 1999). For instance, in 1957 Sony originally created the Walkman, one of the most creative products of all times, by adapting transistor radios and small tape recorders (Morita, Reingold, & Shimomura, 1986). Reducing the scale of the radios allowed a wider range of functionality. Recently, to address the global competitive challenge, the UK government has promoted creativity in businesses, especially in small and medium-sized enterprises. Reinforcing the initiative, the Economic and Finance Ministry commissioned Sir George Cox, an expert in international finances, to review the UK's industries and productions. Cox (2005) proposed that, to accomplish the mission, the government should tackle the people's awareness of creativity, enhance the effectiveness of supports, increase creativity in higher education, employ public procurement, and establish a network of the UK's creative talents.

Within countries as well as worldwide, creativity appears increasingly important. Glăveanu (2010) stated that we live in "a world of change" and become aware that what we normally do may not work anymore. In this situation, creativity is essential for us to achieve our goals as individuals, as organizations, and as countries. This is why not only individuals in the arts and sciences but also governments and organizations across the world have tried hard to enhance the creative potential of their people and creative productivity of their countries (Hokanson, 2010; Kaufman & Sternberg, 2006).

Worldwide Attention to Creativity

Regarding the increasing emphasis on creativity worldwide, Simonton (2006) pointed out that the universal interest mostly concerns creativity in industrial and

educational areas. Focusing on the industry sector, we see that creative productivity helps maintain a nation's competitive edge in the global economy. Thus, many countries have paid great effort to advance creativity in the workplace. In the United States, the Conference Board and Americans for the Arts, in partnership with the American Association of School Administrators (AASA), conducted a 2008 survey on 98 business executives' views on creativity (Lichtenberg, Wock, & Wright, 2008). The survey revealed that 97% of the executives recognized creativity as a workforce skill. However, only 72% referenced creativity as a primary criterion when hiring people; in this group, 80% provided optional creativity training programs to their workers. Based on the results, the executive director of AASA stressed that, in order to promote the 21st century American workforce, the business sector needs to examine what they can do, such as investing in creativity training programs, to foster creative potential in current and future employees. In another report from the 2020 Australia Summit, *Toward a Creative Australia*, the Australian government has considered creativity as a critical factor in building and shaping the country's economy (Australian Government, 2008). Specifically, the government has placed a focus on the growth of commercial arts, such as indigenous paintings, films, music, and fashion design, to represent the nation's rich culture. By encouraging creative artists and designers as well as promoting artistic creativity in education, Australia expects to have new, creative, technology-rich emerging industries to drive its economy shortly.

Not only a pressing issue in the West, leaders throughout Asia have acknowledged the influence of creativity on economic growth and called for greater attention to creativity in their countries. South Korea has reinvented itself by changing

its business culture, advancing innovative designs, and fostering creativity in order to compete in the world market and become a major economic force. Since 1997, South Korea realized that the Confucian-oriented, traditional management style, which relied heavily on patriarchy and hierarchy, could not lead the economy to survive in the globalization era. Many companies started to employ new management styles that more supported creative input of new generation workers (Sang-Hun, 2008). For example, SK Telecom, the nation's largest wireless communication firm, changed all titles of nonexecutive employees to be the same title – Manager. This transformation has successfully encouraged junior employees, who then felt more important in the company, to express creative ideas. In addition to altering their management style, South Korean industries have also replaced their low-cost labor with creative ideas and high technology in order to be “a global recognized city of design” (Toloken, 2008).

In Thailand, Punsak Vinyaratn, former Chief Policy Advisor to the Prime Minister, underlined the dual roles of creativity and design in advancing his nation's industry: “In order to maintain competitiveness in the global market, Thailand can no longer expect to compete with other countries merely in terms of lower labour costs. Thailand needs to capitalize on its creativity in designing products and services to better meet market requirements” (“TCDC,” 2006, ¶ 3-4). The creativity promotion policy has primarily focused on professionals and entrepreneurs in design areas, such as architecture, fashion design, and industrial design, for driving their business performance and productivity. Also, in order to develop Thai people’s original ideas, the policy has made creative design knowledge accessible by offering design libraries, creative centers, and workshops for the public.

Though business, industry, and economy can be impacted by creativity, education is another area where creativeness can enhance teaching and learning. In the 1950s, J. Paul Guilford brought issues of creativity back into the Western research forefront and raised an important question: "Why is there so little apparent correlation between education and creative productiveness" (Guilford, 1950, p. 444)? In unison, Western countries, particularly the United States, became aware that "schools and universities were producing large numbers of graduates, but that most of them were trained simply to apply the already known in conventional ways" (Cropley, 1997, p. 83). Ever since, Western educational systems started to focus on creativity and have explicitly emphasized it in their policies in the last decades of the 20th century (Houtz, 2002). However, there still are specific areas, such as art or science training courses in K-12 schools and teacher education, where Western education needs to enhance creativeness (Fasko, 2000-2001). Having a shorter history of creativity research, Eastern nations, especially those in Eastern Asia, began recognizing the positive impact of creativity in their educational systems since the 1970s (Neihart & See, 2009). It was not until the early 21st century that creativity has taken the more evident part in Eastern education (Kaufman & Sternberg, 2006; Lau, Hui, & Ng, 2004b).

Currently, a growing number of K-12 schools and universities around the world have stressed creativity as part of their declared vision for their staff and students (Jackson, Oliver, Shaw, & Wisdom, 2006; Kwang & Smith, 2004; Tan, 2007). Western countries are acutely accentuating creativity in their educational curriculum in order to generate creative graduates who can compete effectively in professional markets (Florida, 2004; Jackson et al., 2006; McWilliam & Dawson, 2008). For the entire higher

education sector, a report of the European University Association (2007) suggested that research, teaching, and learning activities should involve creativity as the essential part because “the complex questions of the future will not be solved ‘by the book’, but by creativity, forward-looking individuals and groups who are not afraid to question established ideas and are able to cope with the insecurity and uncertainty that this entail” (p. 6).

Since the beginning of the 21st century, Asian nations that only recently began enhancing creativity in their education are rapidly reaching international standards (Kim, 2009; Kwang & Smith, 2004; Niu, 2006; Tan, 2000; Tin, Manara, & Ragawanti, 2010). In 2001, Taiwan’s Education Ministry disseminated the *White Paper of Creative Education* which advocated developing school student creativity in order to realize their country’s potential as “The Republic of Creativity” (Advisory Office of Ministry of Education, 2003). The ministry has reformed a number of laws and policies to center on the cultivation of creativity in all possible areas, including curriculums, staff development, institutional management systems, and learning facilities. For example, the reformed kindergarten curriculum has decreased the role of lecturing, while reinforcing small-group programs, such as free-imagination painting, for children to grow their creativity. So far, both public and private institutions in Taiwan have positively responded to the national initiative.

The emphasis of creativity in education often concerns students’ creative potential and performance in general. Nevertheless, the global attention has recently tended to focus on fostering creativity in specific areas. In 2002, England initiated a national program entitled *Creative Partnerships* to have creative practitioners, such as artists, scientists, and architects, work with teachers in schools to enhance young students’

learning and creative abilities in a particular subject (Creativity Culture and Education, 2010; Heath & Wolf, 2005). In line with the global trend on domain-specific creativity, Dow and Mayer (2004) stated that discipline-relevant skills impact college students' creative skill to solve an insight problem that a solver "must overcome the familiar way of looking at the problem and invent a novel approach" (p. 389). Students with creative competence to solve problems in one area, such as spatiality, may not have problem solving skills in other areas such as mathematics. This endorses the multi-faceted nature of creativeness and the importance of studying creativity in specific areas.

Creativity in Design Disciplines

In the previous sections, we see the importance of creativity increasing in the business and education sectors across the world. Creativeness becomes even more fundamental in both divisions in design arenas. Goldschmidt (1999) proposes that "[design] is a professional activity that is practiced by designers in a variety of design fields" (p. 525). Buchanan (1992) organized "a variety of design fields" into four groups: (1) symbolic and visual communication – such as graphic design, (2) everyday products – such as industrial design, (3) activities and organized services – such as design management, and (4) environments for living, working, playing, and learning – such as architecture and interior design. The present dissertation study focuses on the last category of design disciplines – interior design in particular.

Generally, design represents a creative profession involving innovative designers (Lawson, 2006). Therefore, many countries consider design as a creative industry that takes a vital part in their economic capability (Hokanson, 2010). Focusing on creativity in design realms, Portillo (2002) stated that "creativity is highly valued in the workplace where novel and appropriate solutions to real world problems are sought" (p. 10).

Designers often regard creativity as key in their work. In graphic design, Sawahata (1999) noted that creativity, as “a charged word in the world of design”, “emerges from the juxtaposition of apparently unrelated elements” (p. 5). Emphasizing industrial design, Christiaans (2002) described, “In discussions about the quality of a design and of a designer, the concept of creativity is a dominant factor” (p. 41). In architecture, Casakin, Davidovitch, and Milgram (2010) stated, “Architectural design is mainly concerned with the creative manipulation of form, space, light, materials, and technologies with the aim to achieve an objective, which is aesthetic and functional” (p. 31). In line with the others, Pedersen and Burton (2009) accentuated, “Creativity is an important concept to the field of interior design” (p. 15). Supporting the strong connection between design and creativity, in his classic research on creative personality characteristics, MacKinnon (1962) recruited architects, who represented design practitioners, as a sample of highly creative persons. MacKinnon described that an architect has both artistic and scientific creativity because he is “artist in that his designs must fulfill the demands of ‘Delight,’ and scientist in that they must meet the demands of ‘Firmness’ and ‘Commodity’” (p. 486).

Similar to the practice, design education places an explicit premium on creative ability in the curriculum (Casakin & Kreitler, 2008; Nelson, 2010). Presently, the Council for Interior Design Accreditation (2009), whose mission is to ensure a high level of quality in the U.S. interior design education, identifies creative thinking as a core requirement in the educational program standards: “Entry-level interior designers need to apply all aspects of the design process to creative problem-solving” (p. II-14). This is a core expectation for all interior design graduates from accredited programs. With

experience in practicing and teaching, Nelson (2010) discussed issues of creativity and technological changes in design areas. Although the digital technology has become dominant, creativity is still essential for designers and design students to use technological tools productively. Additionally, Kruse (2010) endorsed that, for the growing interior design profession, it is an appropriate goal of the education sector to enhance creativity, investigation, and design development in design students.

Given the growth of design programs in Asian countries such as South Korea and Thailand, investing in design education certainly has the possibility of influencing Asian contributions (Molsawat, 2007; Woyke, 2007). Similar to the West, there is no doubt that Asian design students should possess creativeness as one of the primary design skills. According to *Design Education in Korea* (Lim, 2006), to advance South Korean design education, the curriculum should primarily place an emphasis on students' creative ability. “[Creative thinking] needs to be developed first, then [other design] skills can be developed” (¶ 1). Faculty of Architecture and Planning, Thammasat University in Thailand, also highlights a goal to create graduates with interdisciplinary knowledge who are capable of producing creative design solutions – whether the graduates' field of study is architecture, interior architecture, landscape architecture, urban planning development, or real estate development (“Academic Program Objective,” 2009).

Problem Statement

As we have seen, design disciplines worldwide recognize the significance of creativity; however, there is a paucity of research on creativity in design across cultures. By reviewing papers on creativity published in top tier design journals including *Journal of Interior Design*, *Design Issues*, and *Design Studies*, the researcher found a few articles on cross-cultural design creativity. In addition, people always consider design as

a merger between the arts and sciences (Buchanan, 1992). These disciplines, with their long histories and traditions, have initially influenced the field of design; however, Cross (2001) argues that “design practice does indeed have its own strong and appropriate intellectual culture” (p. 55). Regarding creativity, design shares similarities with the other disciplines, such as valuing creativity as well as aesthetical and technological merits. Nonetheless, the design field has unique characteristics, including the design problem solving which requires a designer’s synthesizing capacity and the concept of design creativity which influences judgments of design products (Goldschmidt, 1999).

To distinguish design creativity from artistic or scientific creativeness, we need to address critical questions regarding creativity in design that no one has fully answered. The most imperative of these are: how is creativity defined in the design field; how is creativity assessed by experts in the field; and what creativity attributes are perceived as most important by these stakeholders? While some researchers have attempted to answer these questions (e.g., Casakin & Kreitler, 2008; Dorst & Cross, 2001; Glück, Ernst, & Unger, 2002; Lindström, 2006; Meneely & Portillo, 2005), more empirical studies will help evaluate whether their answers can be applied universally.

The questions described above do not appear only in the design field; actually, they are also of primary concerns to creativity research in general. First, since creativity has diverse facets, people have described the phenomenon in different ways (Mayer, 1999; Paetz, 2003; Runco, 2007). Some scholars define creativity in terms of a general property of persons, products, processes, or environments. Others supply creativity definitions with respect to specific domains (Sternberg, 1999). Exploring perceptions of creativity across cultures, Lubart (1999) posited that Easterners view creativity as “a

state of personal fulfillment” (p. 340), whereas Westerners consider creativeness as a new and valuable product. On the other hand, Palezt (2003), who doubted Lubart’s comparison of creativity conceptions, argued that American, Japanese, and Chinese all recognize creativity in terms of novel and appropriate qualities in products, but weighed the two qualities differently. Also, Niu and Sternberg (2002) agreed that people in the East and the West view creativity similarly but not identically; Easterners seem to associate creativity with social value more than Westerners. Based on the variation in creativity conceptions, Getzels (1975) even claimed that it is impossible to reach a consensus on the definition of creativity. So far, creativity scholars have not been able to agree on a single definition; nevertheless, the majority of Western researchers concur that the definition should involve two main characteristics: novelty and appropriateness. Nickerson (1999) clarified that: “Although not everyone considers it possible to articulate clear objective criteria for identifying creative products, novelty is often cited as one of their distinctive characteristics, and some form of utility – usefulness, appropriateness, or social value – as another” (p. 392).

Second, as there is this variation in definitions of creativity, there is also no fully universal method accepted for creativity assessment. Instead, researchers have proposed diverse approaches to gauge creativeness. Among innumerable proposed measurements, the majority of scholars traditionally employ divergent thinking tests, such as Torrance’s (1998) Tests of Creative Thinking (TTCT). The TTCT, which is the most widely-used instrument to assess a person’s creative ability, appears valid and reliable psychometrically. The test directly measures a test taker’s creative problem-solving skill and has shown relatively high correlations to other creativity measures

(Kaufman, Plucker, & Baer, 2008). However, similar to most psychometric tests, the TTCT indicates domain generality of creativity and falls short in terms of construct validity to assess creativity in reality (Reich, 2001). A more practical approach to measure domain-specific creativity in the real world, such as Amabile's (1982, 1996) Consensual Assessment Technique (CAT), involves judges to evaluate creativity of products or their creators (Kaufman, Plucker, et al., 2008). Although the CAT reflects the real-world creativity assessment, accessing actual products and selecting proper evaluators could be challenging. Since reliability of the CAT depends on raters' concurrence, judges' different levels of familiarity with evaluated products could also misrepresent results (Amabile, 1982).

In addition, another significant gap in the knowledge on creativity concerns a cultural context. A decade ago, Hoffman (1999) claimed that there is “a comparatively small body of research that has examined [creativity] across cultures/nations” (p. 38). Although the current literature has shown increasing attention on cross-cultural studies (e.g., Chen et al., 2005; Kim, 2005; Leung, Au, & Leung, 2004), a scope of research contexts still needs expansion. Since the majority of creativity research represents Western perspectives, especially the U.S. point of view, we may not be able to apply this knowledge to other parts of the world (Baer & Kaufman, 2006; Kim, 2007). Reviewing cross-cultural studies on implicit theories of creativity, Paletz (2003) questioned whether Western scholars misinterpret data collected from the East by understating cultural impacts on creativity perceptions. According to Csikszentmihalyi (1988), a culture heavily shapes a person's behavior and perception of creativity. Supporting this notion, Westwood and Low (2003) state that: “Cultures are creative and

innovative within the context of their own systems and to the extent that circumstances require creative and innovative solutions” (p. 253). Hence, to fully understand the nature of creativity, we need to consider cultural influences on the phenomenon.

Cross-Cultural Research: Thai and U.S. Perspectives

Regarding the outlined research context, numerous recent studies on creativity have gradually emphasized the role of cross-cultural research in broadening the scope of creativity studies (e.g., Chen et al., 2005; Kharkhurin & Motalleebi, 2008; Paletz, 2003). Correspondingly, the present dissertation research proposes to extend the body of creativity knowledge by offering a cross-cultural investigation into creativity in interior design. Although some creativity studies are beginning to explore creativity across cultures, much work remains to further examine discipline-specific creativity in a cross-cultural context (Averill, Chon, & Hahn, 2001; Runco, 2007; Westwood & Low, 2003).

This dissertation research aims to explore creativity in the field of interior design across cultural perspectives. Because the United States has the most extensive body of knowledge and research on creativity (Baer & Kaufman, 2006), this study considers the U.S. perspective on creativity to be representative of the West. For a representative of the East, in contrast to a majority of Eastern creativity research that has focused on East Asian countries (Kaufman & Sternberg, 2006), the present study aims to shed light on another part of the continent. Thailand, located in Southeast Asia, was chosen for this dissertation research based on the following reasons.

First, the Royal Thai government has currently established policies and funded programs emphasizing creativity in many areas, especially in industry and education (Maklumtong, 2009; “TCDC Promotes,” 2008; “Thai Creative Industry,” 2007). As highlighted in a recent campaign of Thailand’s Office of the Prime Minister, the

government has planned to utilize Thai creative ideas and solutions to drive the nation's economy (Akarasupaset, 2007; "Creative Economy," 2006; Thailand's Office of the Prime Minister, 2009). Second, the Thai scholar community has started to recognize the importance of creative talent (Laistrooglai, 2010; Malakula, 2003; Pornrungroj, 2003; Sornpaisarn, 1999). Researchers have paid more attention to issues about creativity in order to enhance overall creative potential in Thai people, especially in school students (Panjamawat, 2005; Saengpunya, 2005).

Finally and also importantly, Thai design has proved its high potential to reach global design achievement and recognition. For example, *Interior Design*, an international design trade publication, contained recent articles featuring two outstanding Thai interior designs (Cohen, 2008; Shollenbarger, 2008). An issue of April 08 presented P 49 Deesign's hospitality project, and an issue of June 08 showed Ou Baholyodhin Studio's high-end residential design. Both firms are located in Bangkok, the country's capital city and largest design district. Also, the government establishment of Thailand's Creative and Design Center (TCDC) in 2003 has endorsed important roles of creativity and design in Thailand. As one of Asia's largest design centers, TCDC houses *Material Connexion*, which is a leading international innovative material resource and consultancy, and worldwide collections of books and magazines in all art and design-related fields, such as graphic design, architecture, and interior design. Offering many creativity exhibitions and workshops, TCDC has aimed to foster creative potential in Thai people as well as motivate creative ideas for design professionals and entrepreneurs, particularly in art and design realms ("Thailand Set to Shine," 2005).

Even though creativity becomes a more important focus in Thailand, especially in design-related areas, only little research on Thai creativity has been conducted. Using the keyword *creativity* (ความคิดสร้างสรรค์), a search for Thai scholarly papers on creativity in 2010 was performed on the *Scholar Information System* and *Thai Education Research* databases. The search revealed 490 entries. Most of the articles focused on creative potential of elementary- or middle-school students, and none of them examined applied creativity in design. Further limiting the dissemination of Thai creativity knowledge, most researchers wrote their papers in Thai; this language barrier hinders Thai creativity scholars to share their work more widely with the rest of the world.

Introduction to the Study

In order to broaden the body of creativity knowledge, the present dissertation research explores discipline-specific creativity across cultures. Specifically, this study examines creativity in the context of interior design, with a focus on the assessment, attributes, and definition of creativity, through the two cultural perspectives: Thai and U.S. To scrutinize the measurement and dimensions of creativity, this dissertation study places an emphasis on creative design products as a primary aspect of creativity.

According to Mooney (1963), creativity involves at least one of the following four aspects: product, process, person, and press. Creative products result from creative processes employed by creative individuals, all of which is enhanced by physical and social creative atmospheres. In addition, other researchers, such as Simonton (1990) and Mumford, Scott, Gaddis, and Strange (2002), suggested an additional aspect, persuasion, to point out the ability to convince others with one's creative talent. It is important to restate that this dissertation study examines only the creative product. In

design fields, the design product is the evidence of a designer's creative talent and the outcome of a creative design process (Demirkan & Hasirci, 2009). Further, the product has been considered a key aspect in studying creativity; however, it has been the least empirically researched and understood (Amabile, 1996; Treffinger, 2002).

To assess the creative design product, this dissertation study employs Amabile's (1982, 1996) Consensual Assessment Technique (CAT), which has been most widely-respected and utilized in different disciplines, such as education, psychology, business, music, art, and design (Dollinger & Shafran, 2005; Kaufman, Plucker, et al., 2008). This technique primarily relies on an assumption that "experts in a domain do share creativity criteria to a reasonable degree" (Amabile, 1996, p. 42), thus it requires experts to assess creativity from their own concepts of creativity. Supporting the role of experts in gauging levels of creativity, Csikszentmihalyi (1988) recognized the expert as one of the three factors: the individual, the domain, and the field, in his systems theory of creativity. Experts take part in the field influencing and judging the individual's creative outcomes in the domain. In interior design, the expert includes design practitioners who often assess design works of others, particularly entry-level designers. Therefore, the present study recruits experienced Thai and U.S. practitioners to evaluate creative design products represented by a sample of entry-level design portfolios.

Entry-Level Interior Design Portfolio as Creative Product

To properly employ the CAT as an assessment tool, an evaluated product must meet the following three requirements: it has to be appropriate to be judged; it has to allow for flexibility and novelty in responses; and it should not represent participants' different skill levels in baseline performances (Amabile, 1996). An entry-level design portfolio meets all of the three criteria. First, the portfolio is usually evaluated in the

actual hiring process to determine a design student's foundation skill sets (Linton, 2003). Second, the portfolio allows for a design student's creative solutions and interpretations (Castiglione, 1996; Newstetter & Khan, 1997). Third, portfolios used in this study present similar skill levels of their creators as design students who can work digitally and also employ hand skills.

The focus on the portfolio, as a creative design product in this study, can assume the form of interior design solutions, two-dimensional drawings, three-dimensional models, digital and hand sketched images representing a range of media. The portfolio is well recognized in allied design areas, such as architecture, industrial design, and interior design, as an important tool for assessing design ability, creative talent, and potential for future achievement (Linton, 2003). The portfolio also represents a passport enabling students who are graduating from interior design programs to cross from the educational to the professional world. To employ a new designer, a practitioner primarily focuses on a portfolio, and then calls an applicant whose portfolio passed the review for an interview prior to making a final hiring decision. Hence, there is no doubt that the evaluation of design portfolios plays a significant role in the hiring process (Linton, 2008). Nevertheless, little information on how designers assess portfolios and gauge their level of creativity has been empirically revealed (Cho, 2007; Levins, 2006).

Domain, Individual, and Field as Conceptual Model

Figure 1-1 illustrates primary aspects of this dissertation research based on Csikszentmihalyi's (1988) systems theory of creativity presenting relationships among the domain, the individual, and the field. Csikszentmihalyi noted that these three components interact with each other, and the starting point of the interaction is purely arbitrary. The domain provides knowledge and skills, including exposure to rules and

practices, to the individual, who supplies the ability and personality to produce a creative outcome. The field also receives precedents from the domain, while it judges creativity of the individual's outcome and passes the result to the domain.

In the current research, the domain comprises the interior design discipline and culture. The interior design realm offers the design fundamentals and skill sets to the individual and the field, represented by Thai graduating interior design students and Thai and U.S. experienced design practitioners, respectively. The students create a sample of entry-level design portfolios, and the practitioners assess the portfolios as the individual's creative outcome. In addition to the interior design discipline, culture shapes perceptions and behaviors of the individual and the field. Thai culture seems to influence the Thai students' thinking styles and ways to express creativity in their portfolios. Thai and U.S. cultures tend to affect designers who practice in different cultural areas in terms of their judgments and perceptions of creativity.

Based on the model described above, the present study recruits Thai and U.S. experienced designers and Thai design portfolios in order to examine the measurement, attributes, and definition of domain-specific creativity across cultures. By reviewing relevant literature on the evaluation of creative products that will be discussed in the methodology chapter, this research employs novelty, appropriateness, technical merit, and aesthetic appeal as creative dimensions for assessing design portfolios. The study also includes overall creativity and hiring potential into the assessment criteria in order to connect the value of a portfolio to its original purpose. Relationships of the creative dimensions to overall creativity in design portfolios and their influences on potential that a student would have an interview leading to employment are examined in this study.

Research Purposes

As established in the research background, countries worldwide have increasingly called for creativity. The majority of creativity knowledge based upon the Western perspective remains untested in other parts of the world. Hence, a primary purpose of this dissertation study is to conduct a cross-cultural investigation into creativity in the context of interior design. To explore cultural differences and/or similarities, the current research employs a sample of Thai and U.S. experienced designers to assess creativity levels in a sample of Thai entry-level interior design portfolios.

Many believe that designers all engage in “a global community...that speaks the same (design) language” (Ledoux & Ledoux, 2010, p. 341). Although a culture impacts design styles in each country, design practitioners around the world basically share the same fundamentals of design. Particularly now, when we live in a global workforce, it is not surprising to see practitioners from different cultures work on a project together (Kruse, 2010). Due to updated, high technologies, we also easily share and judge works of design worldwide. Thus, it should be helpful to have a common metric to assess creative design works that is universally accepted. By considering the evaluation of creative design products, another research purpose is to explore Thai and U.S. design professionals’ assessments of design portfolios. What do designers consider to be creative in design portfolios, how critical are portfolios in the assessment of creativity, and how do cultural influences impact the assessment of creativity in portfolios?

Finally, the present study aims to define creativity and its attributes in the context of interior design. Barnard (1992) indicated that although both design educators and practitioners are experts in the design field, they seem to hold different definitions of creativity and creative design products. The educators tend to associate creativity in

design projects with aesthetic aspects. In contrast, the professionals mostly referred to technical skills when describing creativity in design projects. Even though design educators have emphasized a concept of creativity in education, it is still unclear if design professionals consider the same creativity concept when selecting entry-level designers. Thus, this dissertation study also investigates how practitioners define creativity as viewed in design portfolios as well as in the interior design profession based upon their attitude and work experience.

Significance

Responding to the research purposes, this dissertation study aims to expand the body of knowledge in interior design as well as connect a gap between the academic and professional sectors. There has been disengagement between design professional practice and education. Baker and Sondhi (1989) noticed changes in the interior design profession and suggested the responsibility of educators to lift educational standards to the professional level: "This can be accomplished in large part by keeping educators apprised of current needs of the profession in order to produce competent graduates" (p. 35). Considering the role of the academic, Hildebrandt (2010) argued, "Professional design education is losing ground with the design profession it serves" (p. 424). Professional design practice has recently altered its focus to a collaborative practice involving engagement of cultural and multi-disciplinary design teams; nonetheless, design education has paid little attention to this issue. To produce proficient graduates who are soon-to-be designers, the practice and education sectors have to realize each other's needs better.

In order to bridge these two divisions, the current study provides an insight into what practitioners expect in design graduates through the assessment of creativity in

graduating students' portfolios. The portfolio is traditionally in a print format; however, Eisenman (2006) suggested that innovative firms have increasingly preferred the portfolio in a digital form such as a Web site, slide show, or PDF. Importantly, students usually create their portfolios based on advice of their professors who are experts in the academic sector, whereas actual evaluators of their portfolios appear to be designers who are experts in the practice sector. Hence, the study results are anticipated to provide a better understanding of creativity and its dimensions in design portfolios and propose useful recommendations for design educators who are guiding students in developing their own portfolios. In addition, even though cross-cultural studies on creativity in general have increased, conceptions of discipline-specific creativity have been scarcely examined across cultures. Therefore, the research findings not only bridge education and practice but also compare Thai and U.S. views on creativity within the interior design discipline.

Research Questions

To thoroughly examine Thai and U.S. designers' evaluations and perceptions of creativity in design, this dissertation study addresses both quantitative and qualitative questions. Research question one to three statistically examine designers' judgments of overall creativity, hiring potential, and the creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal. Next, research question four to seven quantitatively compare Thai and U.S. practitioners' evaluations of the portfolios to indicate cultural similarities and/or variations. Finally, research question eight to ten qualitatively explore portfolio assessments and hiring considerations as well as definitions of creativity described by the two groups of practitioners.

Quantitative Analysis of Combined Sample

- Question 1: Do experienced design practitioners perceive overall creativity in entry-level interior design portfolios as predicting hiring potential?
- Question 2: What is the relative importance of the creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal, in predicting overall creativity in portfolios?
- Question 3: What is the relative importance of the creative dimensions in predicting practitioners' evaluations of portfolios in terms of perceived hiring potential?

Quantitative Comparative Analysis between Thai and U.S. Practitioners

- Question 4: How do Thai and U.S. practitioners perceive the overall level of creativity in portfolios and hiring potential?
- Question 5: How do Thai and U.S. practitioners evaluate the creative dimensions in portfolios?
- Question 6: How do Thai and U.S. practitioners perceive overall creativity in portfolios as predicting hiring potential?
- Question 7: How do Thai and U.S. practitioners perceive the creative dimensions in portfolios as predicting hiring potential?

Qualitative Comparative Analysis between Thai and U.S. Practitioners

- Question 8: How do Thai and U.S. practitioners describe their primary criteria for assessing portfolios?
- Question 9: How do Thai and U.S. practitioners view creativity in portfolios with respect to hiring potential?
- Question 10: How do Thai and U.S. practitioners define design creativity in their own terms?

Assumptions

There are six assumptions in this dissertation research. The first assumption regards a cultural bias. Runco (2007) suggests that, without an insight into cultural differences, researchers should not compare creativity between cultures. In line with this, Westwood and Low (2003) state that "conceptions and definitions of creativity in

one culture should not be applied unthinkingly, uncritically and unreflexively to evaluate and judge creativity in another" (p. 253). Based on this precedent, the present study assumes that, with critical considerations, we may evaluate and apply definitions of creativity across different cultures. We must be cautious in making wide generalizations based on a small sample size from a single country. Besides, findings and potential relationships should be further studied and carefully examined in ongoing research.

Second, the present dissertation study assumes that creativity emerges from an interaction among a person, process, environment, and product. According to Treffinger (2002), creative outcomes result from the combination between creative characteristics of people and processes they perform within proper contexts. In this study, the creative product is presumed to represent creativity in the person, process, and environment. In other words, creativity in portfolios happens based on creative talent in students who created the portfolios, creative processes, and environments that promote creativity.

The third assumption relates to creative ability of participating design students. Supporting the belief that creativity is a normally distributed trait (Hope, 2010; Richards, 2007), this research assumes that the students, who have been trained and educated to the highest level of Thai undergraduate interior design schooling, have some degree of creative ability. Fourth, all Thai interior design graduates who produced portfolios used in this study have been exposed to similar discipline-specific knowledge and have gained foundation skills in interior design. This is based on the fact that the students passed the same screening process before being accepted into their present interior design program. They have experienced the same program with the same educators and have been given the same or similar design problems. Hence, this study assumes

that each of the students has had an equal chance to produce creative design projects represented in their entry-level portfolios.

The fifth assumption regards practitioner evaluations of design portfolios. When assessing digital portfolios, practitioners are assumed to employ the same criteria as they use in evaluating traditional print portfolios. Despite the formats, design portfolios assist in our comprehension of individual designers, their design work, creative talent, and vision in the field (Linton, 2008). Additionally, Eisenman (2006) described that, when an in-person presentation is not available, the digital portfolio is more convenient and beneficial for designers than the print version. It is also important to note that a sample of design portfolios used in this study does not contain all projects as originally submitted. The researcher standardized the portfolios to control confound factors and keep an apposite number of slides for judges to review. However, the researcher kept the integrity in the portfolios the same as their original submissions. Thus, it possibly assumes that a sample of portfolios receives designers' feedbacks as similarly as the original portfolios would receive. The final assumption is that the portfolio assessment process employed in the present study mirrors a real-world evaluation of portfolios in the hiring process; experienced practitioners reviewed a sample of portfolios created by actual graduating students at the designers' respective firms.

Summary

Creativity plays a critical role in industries and education systems worldwide. Given the fact that the majority of creativity research has relied on the Western view, a cross-cultural study becomes essential to broaden the understanding of creativity in other areas of the world. The interior design field highly values creativity as a key quality of design works. However, it is doubtful whether people in the field, including educators

and practitioners, embrace the same conception of creativity. Recruiting Thai and U.S. designers, this dissertation study examines creativity, its attributes, and hiring possibility in Thai entry-level interior design portfolios across the two cultural viewpoints. Research questions are developed employing both quantitative and qualitative approaches. The study results will bridge a gap between the academic and professional world and provide insight into cross-cultural creativity in interior design.

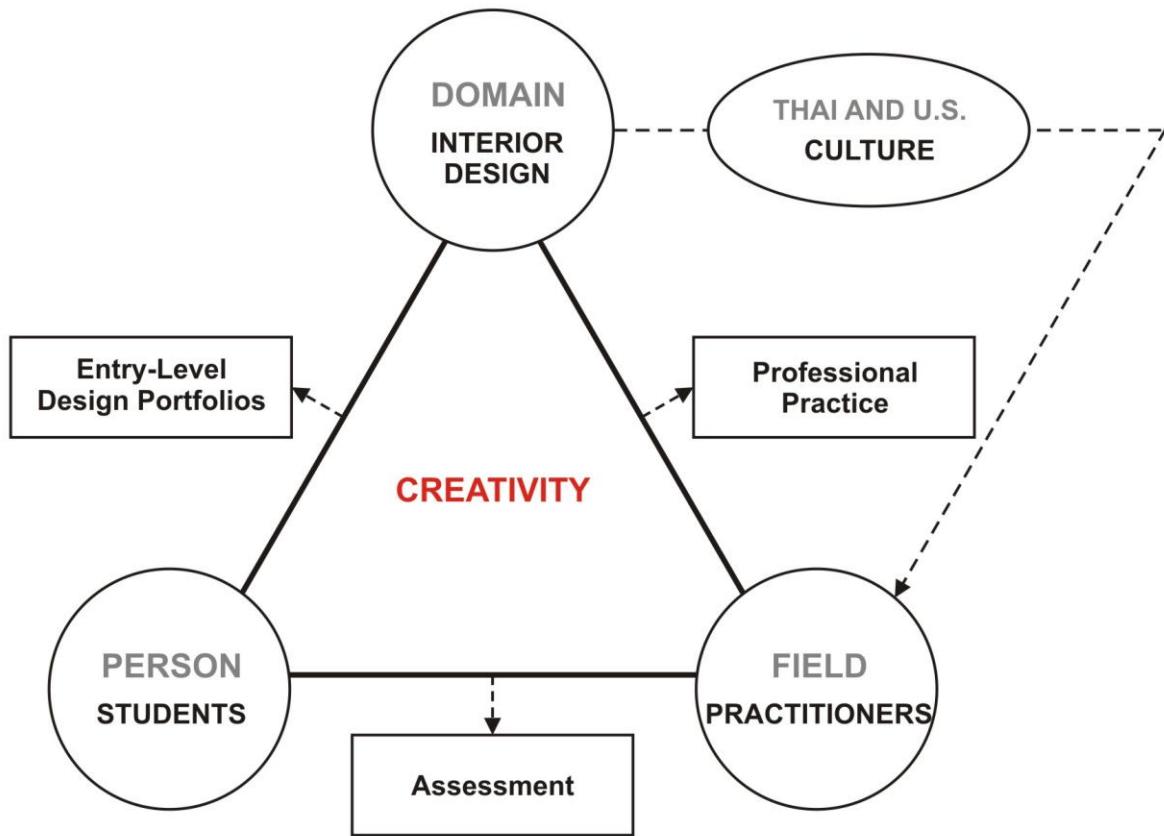


Figure 1-1. Conceptual model adapted from Csikszentmihalyi's (1988, p. 329) systems view of creativity model

CHAPTER 2

REVIEW OF LITERATURE

Introduction

Creativity is a puzzle, a paradox, some say a mystery. Inventors, scientists, artists rarely know how their original ideas arise. They mention intuition, but cannot say how it works. ...the apparent unpredictability of creativity seems to outlaw any systematic explanation, whether scientific or historical. (Boden, 1994, p. 75)

As Boden posits in *Dimensions of Creativity*, creativity captivates and, at the same time, eludes everyone. Researchers across disciplines and cultures have built a body of knowledge on creativity; however, owing to the multi-faceted nature of the phenomenon, the literature reflects diverse perspectives on what creativeness actually is. Aiming to understand creativity, scholars have developed innumerable approaches, definitions, and measurements. Although we have not reached a definite consensus yet, these contributions have helped us to gradually discern different facets of creativity.

The present dissertation study focuses on creativity in the context of interior design across cultures. Specifically, this research explores Thai and U.S. designers' evaluations of design portfolios as creative products, and also examines design practitioners' perceived attributes and concepts of creativity. This chapter reviews the most relevant literature on creativity as background for addressing the research questions. The main thrust of this review centers on assessments of creative products and scholarly definitions of creativity. The chapter consists of two sections. The first part presents an overview of creativity research, perceptions, as well as relevant studies that provide background to the present research. The second part emphasizes cross-cultural studies on creativity perceptions and measurements.

Creativity

There are tens of thousands of artists, musicians, writers, scientists, and inventors today. What makes some of them stand out from the rest?

...Although many variables may contribute to determining who stands out from the crowd, certainly creativity is one of them. (Sternberg, Kaufman, & Pretz, 2002, p. xi)

In *The Creativity Conundrum*, Sternberg et al. (2002) recognize creativity as a complex phenomenon that identifies exceptionality in someone or something within society or a specific discipline. The emergence and impact of creativity has intrigued researchers across disciplines; as a consequence, they have offered various notions and methods to scrutinize the phenomenon. This gives rise to an extremely diverse range of research perspectives on creativity (Runco, 2007).

Historical Overview of Creativity Research

Glăveanu (2010) views creativity through the lens of cultural psychology, which assumes that culture shapes human cognitive processes, including perception of creativity. Based upon this point of view, Glăveanu proposes three major paradigms in creativity research: He, I, and We. Existing in the pre-psychological period, the “He-paradigm” considers creative talent only belonging to geniuses. In *Hereditary Genius*, the first scientific research of the highly creative eminence, Galton (1869) described the perception of creativity in this period as the human’s highest ability of creation which could be seen in works of eminences only. The “I-paradigm” emerged in 1950 when interest in creativity research began to grow. Despite the same focus on the individual, the I-paradigm replaced the exclusive power of creativity with a new idea that everyone could be creative somehow. Guilford (1950), who brought the potential of creativity research back into the forefront, stated in his *American Psychological Association (APA) Presidential Address* that “creative acts can therefore be expected, no matter how

feeble or how infrequent, of almost all individuals” (p. 446). During this period, creativity pioneers productively developed seminal creativity definitions, approaches, and theories (Baer & Kaufman, 2006). For instance, Guilford (1950) defines creativity as “the abilities that are most characteristic of creative people” (p. 444) and proposes the Structure of Intellect theory (SOI; 1967) to describe processes that a creative person’s brain could perform. Based on Guilford’s SOI model, Torrance (1962) developed Tests of Creative Thinking (TTCT) to assess a person’s creative thinking skill on fluency, flexibility, originality, and elaboration; by far, the TTCT has become the most widely used instrument in creativity research worldwide. Additionally, Sternberg (1985) employed implicit theories, which emphasize lay persons’ perceptions of certain constructs, to explore creativity concepts residing in people’s minds and examined relationships among implicit conceptions of creativity, intelligence, and wisdom.

Since the 1980s, some researchers have noticed the overemphasis on individual influences and ignorance of social factors in the study of creativity. The “We-paradigm” recently surfaced when scholars became interested in social creativity. Amabile (1982) formally introduced the social psychology of creativity and raised two critical questions: how is a creative result different from other solutions, and what conditions best support creative outcomes? To address these questions, scholars have currently employed contextual or confluence approaches to explore creativity in its context. Until now, although we have not known a definite path to fully understand creativity, the research community has generated significant progress and suggested the inclusive direction, which integrates multiple levels from individuals to disciplines and cultures, in order to further investigate the complex nature of creativeness (Simonton, 2003).

Definitions of Creativity

It seems simple to find cases of creative people, products, or situations, but much more complex to empirically delineate what creativity exactly means. Interestingly, Plucker, Beghetto, and Dow (2004) reviewed 90 articles on creativity, published in top tier peer-reviewed journals including the *Creativity Research Journal* and the *Journal of Creative Behavior*. They found that only 34 papers explicitly supplied a definition of creativity, 37 papers implicitly described the construct, and 19 articles did not offer any definitions. The authors hypothesized that researchers neglected to define creativity since they assumed that “people know what they are talking about” (p. 88). Even if some researchers defined the term, their definitions appeared inconsistent.

In creativity research, scholars have described creativity differently based on their diverse research standpoints; however, we have not found a definite definition of creativity yet (Runco, 2007). Some researchers have referred to creativity as personality traits and characteristics. Martindale (1999) states, “Creativity is a rare trait” (p. 137), while Richards (2007) sees creativity as more normally distributed. Others have thought that creativity involves “the interaction between persons and their environments” (Sternberg et al., 2002, p. 1). Regarding varying definitions of creativity, Kaufman, Plucker, et al. (2008) suggest that, in any research on creativity, it is very important to clarify what a researcher believes creativity means. In this dissertation study, the researcher defines creativity based on the following frameworks.

Four Ps framework

To facilitate organization of views on and definitions of creativity, Mooney (1963) proposes four foci: the person, the process, the product, and the press. Creativity involves the people who are able to create new ideas, the process of envisioning new

ideas, the outcome of the process, and/or the physical and social environments that encourage new ideas to emerge. In addition, other scholars, such as Simonton (1990) and Mumford et al. (2002), suggest a fifth P, persuasion, or the ability to persuade others of one's creative talent. However, this aspect seldom appears in the literature.

The 4 Ps framework has proven feasible in examining most issues of creativity emerging in the literature; therefore, scholars have widely recognized and utilized this system (e.g., Feldhusen & Goh, 1995; Howard, Culley, & Dekoninck, 2008; MacKinnon, 1987; Mayer, 1999). In his classic review, Taylor (1988) discussed directions to and definitions of creativity based on the four creativity foci. Likewise, Kaufman, Plucker, et al. (2008) used the framework to outline their analysis of creativity assessments. Some researchers, however, have referred to particular aspects of the framework. Torrance (1962) focused on the person and process in refining Tests of Creative Thinking, which measure a person's creative problem-solving skill. Sternberg and Lubart (1991) centered on the person and press in their investment theory, which proposes six interrelated resources of creativity: intellectual abilities, knowledge, styles of thinking, personality, motivation, and environment. Amabile (1982) emphasized the product and press in her Consensual Assessment Technique, in which appropriate judges assess creative products in the domain in question.

Importantly, this dissertation study focuses on the product and cites Amabile's (1982) definition of creativity: "A product or response is creative to the extent that appropriate observers independently agree it is creative. Appropriate observers are those familiar with the domain in which the product was created or the response

articulated” (p. 1001). Furthermore, the present study considers the creative product as the fruit of the creative person, process, and press based on the following definition:

The overarching definition of creativity seems to favor the idea that creativity involves the creation of new and useful products, including ideas as well as concrete objects; however, from this definition, it follows that creative people are those who create new and useful products, and creative cognitive processes occur whenever a new and useful product is created. (Mayer, 1999, p. 450)

Consensus on novelty and appropriateness

Although we have not found a distinct definition of creativity yet, the majority of researchers have generally agreed that creativity involves a novel and appropriate outcome (Amabile, 1996; Kaufman, Plucker, et al., 2008; Mayer, 1999). MacKinnon (1965) defines creativity as “a response or idea that is novel...[and it] must to some extend be adaptive to...reality. It must serve to solve a problem, fit a situation, or accomplish some recognizable goal” (p. 485). Boden (1999) posits, “Creativity is the generation of ideas that are both novel and valuable [or appropriate].” The novel aspect “may be defined with reference either to the previous ideas of the individual concerned or to the whole of human history”; the appropriate aspect “is not found by science, but negotiated by social” (p. 351).

Interestingly, these two attributes of creativity reflect Kirton’s (1976) adaption-innovation cognitive style which presents two types of people’s problem-solving and decision-making styles. Adaptors tend to maintain harmony and refine a problem, while innovators prefer to break a pattern and offer a challenging solution. Treffinger and Talbot (1995) reinforced the relationship between the cognitive styles and perceptions of creative performance. In their study, the adaptive orientation focused on functional aspects of products, whereas the innovative style emphasized novel aspects. The

authors also noted that both adaptors and innovators can be creative in their own way, but literature on the creative person often refers to the innovator. Supporting a close relation between creativity and innovation, Wehner, Csikszentmihalyi, and Magyari-Beck (1991) reviewed 100 dissertation abstracts on creativity in different fields including psychology, business, and history. They found that the disciplines identified creativity differently by using terms such as innovation, or artistic and scientific development. The variation in signifying creativity across fields reflects the domain specificity of creativity.

Conceptions of creativity in interior design

Focusing on allied design areas, including architecture and interior design, Pedersen and Burton (2009) claim that although creativity importantly characterizes designers and their works, design scholars and practitioners rarely define what creativity actually means to them. Thus, the researchers employed a concept analysis method to analyze concepts of creativity, mainly in the interior design area. Regarding Wilson (1971), concept analysis, which is a part of content analysis, outlines the conceptual definition of a construct by examining ways in which the construct is employed and establishing its main attributes. Analyzing the uses and important aspects of creativity in scholarly journals including the *Journal of Interior Design*, *Design Issues*, *Design Studies*, and the *Journal of Architectural Education*, Pedersen and Burton (2009) concluded that design scholars have used creativity in describing key competencies of designers, processes, and products. This finding supported the practicality of Mooney's (1963) framework, recognizing creativity as a property of the person, process, and/or product, in the design context.

Further, the researchers indicated two categories of attributes that appeared most often in definitions of creativity offered in the reviewed journals: ideas and innovation.

First, design scholars have regularly considered aspects related to ideas – “The facility to produce, play with, merge, synthesize, and evaluate ideas” (Pedersen & Burton, 2009, p. 22) – as a component of a creative designer or design process. For instance, Portillo and Dohr (2000) posit, “A creative idea can emerge when the everyday becomes uncommon” (p. 55). Interestingly, many researchers have usually connected ideas to the other critical attribute of creativity – innovation. Roy (1993) states that “creative ideas are needed not only to provide the basic concept for an innovative product but also to solve the many development and detail design problems” (p. 440). Second, design scholars have always viewed a creative designer or design process in relation to a new, original idea or product. Goldschmidt and Tatsa (2005) stress that a creative designer has “the capacity to produce new or original ideas” (p. 593). Also, the concept of novelty frequently appears in assessments of creative design products (e.g., Christiaan, 2002; Dohr, 1982; Kreitler & Casakin, 2009). Considering the consensus, we can assume that, when describing design creativity, scholars in design fields seem to emphasize novelty, which is more obvious to notice and assess than appropriateness.

Current Applicable Approaches to Study Creativity

Similar to the definition, it is important to indicate which research approaches steer this dissertation study. Regarding both individual and contextual factors in cultivating creativity, this research employs confluence approaches, particularly Csikszentmihalyi’s (1988) systems theory, and domain-specific perspective to examine the creative performance. Referring to the 4 Ps framework, the current study emphasizes the creative product and its assessment. Furthermore, this research employs an implicit-theories approach, which delineates lay persons’ conceptions of certain constructs, to explore definitions of creativity.

Confluence perspectives

Confluence or contextual approaches expand a scope of creativity research beyond the individual into the contextual factor, which allows researchers to explore diverse facets of creativity all together. In the last three decades, the confluence view has become influential in the study of creativity. Many prominent scholars have used this integrated perspective in developing their theories and research (e.g., Amabile, 1996; Sternberg, 2006). Kaufman and Sternberg (2006) clarify that the confluence approach includes “multifactor models that posit several separate but interacting components that must come together to yield original and productive outcomes” (p. 20). A majority of the literature defines the approach similarly to this definition. However, Runco (2007) interprets confluence models in a slightly different way as “stage theories” that explain a creative person’s cognitive process. Without citing the contextual part in those theories, Runco could mislead the promise of the confluence perspective and move the field of creativity back to the individual-focus paradigm. We should note that this dissertation study perceives the confluence approach as an endeavor to understand diverse facets of creativity and to move the field forward.

Systems theory

Csikszentmihalyi (1990) posits that “creativity is not an attribute of individuals but of social systems making judgments about individuals” (p. 196). He also proposes a dynamic model of creativity that involves three interacting factors: individual, domain, and field. Accordingly, the individual gains knowledge in a domain and develops his/her creativity through personality characteristics, cognitive processes, and motivation. In addition, this theory assumes that everyone has potential to be creative. The domain protects and transmits creative outcomes within the context both in present and future.

Domains, including cultures and disciplines, appear relatively stable, and through learning, they can transmit valuable ideas without change from one generation to the next. Finally, the field comprises experts or stakeholders who influence a domain and judge creative outcomes. Members of the field can either enhance or hinder creativity in the domain. By accepting too many new ideas or being too restrictive, the field can limit new creative outcomes. In addition, the interaction among the three components seems circular in nature, thus a starting point of the system appears purely arbitrary.

Domain specificity of creativity

A primary question at the heart of creativity research asks whether we can apply creativity to a variety of domains or only a specific one. This question has split research perspectives. Dominating the study of creativity since Guilford's (1950) *APA Presidential Address*, the universal camp views creativity as a general process that people share across domains (e.g., Simon, 2001; Torrance, 1962). Torrance (1988) proposes that creativity happens when a person solves a problem, and testing problem solving skills can reveal real-life creativeness. Thus, a main source of evidence for domain-general creativity comes from paper-and-pencil tests that mostly gauge divergent thinking skills (Baer, 1998; Mayer, 1999). In contrast, researchers who oppose domain generality argue that divergent thinking represents real-world creativity only partially. Reflecting on the problem of divergent thinking, Brown (1989) stated:

We can see why the initial promise of divergent thought has not been fulfilled. Implicitly or explicitly, creativity theorists viewed divergent thought as a fairly general process that would account for a variety of creative activities. But several lines of research and theory...are converging on the conclusion that talent and creativity are domain specific whether by dint of 'natural' proclivity, extensive training, and/or education. (p. 22)

Regarding a domain as influential to creativity, the discipline-specific camp posits that creativity appears unique and specific within a context (e.g., Kaufman & Baer, 2005; Weisberg, 1999). Baer (1998) indicated that recent studies on the creative performance involving judgments of appropriate experts have supported domain specificity. For example, Kaufman, Baer, Cole, and Sexton (2008) asked poetry experts and college students with no expertise in poetry to judge creativity in a sample of poems. The students' ratings appeared relatively different from the experts' judgments; this suggests that judges without appropriate expertise may not be qualified to assess creative products at least in the field of poetry. Similarly in design areas, examining evaluations of design educators, design students, and mathematics students on creative design products, Christiaans (2002) concluded that, in assessing creative design works, "it would be helpful to rely on [design] expert judges" (p. 53). As Kaufman and Baer (2005) claim, "whether or not general creative thinking abilities exist, there is no doubt that domain-specific abilities exist – and that such abilities matter very much in creative performance in diverse domains" (p. xiii).

Seeing the merit on both sides, some scholars have compromised the two approaches. Supporting a hybrid position that agrees with both camps, Plucker (2005) advocated, "The field...will be much better off if we focus on identifying the ways in which enhanceable aspects of creativity are domain general and domain specific within each context of interest" (p. 312). The researcher of the present study agrees that the complex nature of creativity may involve both domain-general and specific components. However, this study reinforces Kaufman and Baer's (2005) domain-specific notion which is in line with the system theory described previously. Although we can apply the

general process of creativity across contexts, a discipline remains influential in other characteristics of creativity, particularly in the creative performance and its assessment.

Creative product

Rhodes (1961) states, "Products are the artifacts of thoughts" (p. 305) including ideas, objects, acts, and all kinds of expressive outcomes created by creative persons. Scholars have defined a creative product in a way to clarify its attributes, such as Jackson and Messick (1965): "[W]e generally insist as a first step that a product be novel before we are willing to call it creative....Somehow the mere oddities must be weeded out. This task requires the application of a second criterion, appropriateness" (p. 312-313). Similarly, Averill (2005) considers a creative product as something "different from what is standard for the individual or group, and it is of some value (e.g., aesthetically as in art, theoretically as in science, or practically as in business)" (p. 231).

Yet we see the same consensus on creativity definitions; most researchers have cited novelty and appropriateness when describing a creative product and have viewed both aspects as equally important when depicting the creative performance. Novelty alone simply makes a product bizarre (O'Quin & Besemer, 2006). Likewise, an appropriate outcome "without unusualness would be merely a cliché" (Jackson & Messick, 1965, p. 313). However, novelty is more easily identified than appropriateness. One can notice immediately what is new or different from others, but one needs knowledge and expertise in selecting what is useful or appropriate to its context.

MacKinnon (1987) claims, "The starting point, indeed the bedrock of all studies of creativity, is an analysis of creative products, a determination of what it is that makes them different from more mundane products" (p. 120). Seeing the product as the result of the person, process, and/or press, MacKinnon also endorses that the examination of

creative performance can reveal much about creativity arising from the other aspects. Supporting this notion, scholars in different disciplines have proposed instruments to assess creative products. In interior design, Barnard (1992) offered a set of criteria related to creativity, technical skills, and aesthetic pleasing to evaluate creativity in interior design projects. In physics, Eichenberger (1972) developed a measure based upon creative scientists' traits and divergent thinking skills, including fluent, flexible, original, and elaborative, to gauge creativity in inventive solutions of physics students. In the culinary industry, Horng and Lin (2009) proposed eight criteria to judge levels of creativity in Chinese cuisine: color; professional technique; aroma, taste and texture; modeling and arrangement; garnish; dishware; handling of ingredients; and overall assessment. Interestingly, these proposed instruments reflect domain-specific criteria in evaluating creative products. Different from the other areas, assessing creative design works involves technical and aesthetic merits which represent artistic and scientific features of design. Measuring creativity in scientific solutions relies on characteristics and skills of creative individuals in the sciences, while rating creative cuisine requires sensory criteria as discipline-relevant considerations.

Without specifying a context, some researchers have offered measurements of creative outcomes to employ universally. The most widely recognized and utilized assessments include Besemer and Treffinger's (1981) Creative Product Analysis Matrix (CPAM) and Amabile's (1982, 1996) Consensual Assessment Technique (CAT). While similarly focusing on creative products, the CPAM and CAT portray different points of view. The CPAM proposes the idea that it is possible to identify qualities of the creative outcome and to disprove the misconception of creativity by using a systematic measure.

Thus, the CPAM aims to enable laypeople to evaluate creative products in any field. On the contrary, Amabile developed the CAT based on the notion that only proper judges in the domain in question are qualified to assess creative artifacts in that area. Instead of establishing an objective tool, the CAT relies heavily on the judges' subjective creativity definitions in assessing creative products.

Creative Product Analysis Matrix (CPAM): Besemer and Treffinger (1981)

synthesized over 90 studies on creative products and found more than 125 specific attributes of the creative performance. The researchers classified the attributes into three general dimensions: (1) novelty, (2) resolution, and (3) elaboration and synthesis. Novelty implies the newness of the product. Resolution refers to the degree to which the product meets the requirements of the problem. Elaboration and synthesis includes the development and stylistic considerations of the product. By using semantic pairs of adjectives to measure the three main dimensions, Besemer and O'Quin (1986) further improved the CPAM model and named the updated instrument the Creative Product Semantic Scale (CPSS). The researchers posit that, regardless of specific fields, both CPAM and CPSS can "help cultivate more careful observation of created products and to focus judges' attention on relevant attributes of products" (Besemer & O'Quin, 1999, p. 287). Many studies on creative products mostly in business areas that recruited laypeople rather than professionals as judges have utilized the model and instrument (e.g., Horn & Salvendy, 2006; White, Shen, & Smith, 2002; White & Smith, 2001). Reviewing the literature in marketing, product development, and advertising, O'Quin and Besemer (2006) found that the CPSS has benefited those areas in terms of testing for marketability, product design, product improvement, advertising, team processes,

screening of ideas, and diagnosis of brand problems. The use of the CPSS to determine market success has confirmed that not only novelty but also resolution and style play important roles in characterizing creative products.

Consensual Assessment Technique (CAT): The CAT appears to be the “golden standard” of creativity assessments because of its versatility in the real world (Carson, 2006). Employing panels of actual expert judges in a given domain, the CAT involves evaluations of real products that are assessed in the same way that creativity is assessed in reality, not in any controlled environment. Kaufman, Baer, and Cole (2009) assert that the technique is independent from any particular theory of creativity; its only theory suggests that experts in the domain in question readily identify creativity when they see it. Therefore, when using this technique, judges’ expertise and subjective conception of creativity are primary requisites. Amabile (1983) clarifies validity of the CAT saying that “by definition, inter-judge reliability is equivalent to construct validity. If appropriate judges independently agree that a given product is highly creative, then it can and must be accepted as such” (p. 39).

Many studies have proved that the CAT is valid and reliable to evaluate creativity in a wide range of products. Amabile (1996) and her colleagues validated the CAT in over 30 experimental studies that recruited experts to judge creativity in collages and poems. The ratings consistently showed relatively good inter-rater reliabilities, generally in the .70 to .90 range. The researchers also noted that the number of judges typically affect the reliability; the more judges, the higher the inter-judge reliability. To expand the scope of the CAT’s application, Auh and Johnston (2001) examined creativity in music and writing. They recruited three experts in music and two experts in children’s writing

to evaluate levels of creativity in 19 musical compositions and 14 invented stories created by three- to five-year-old children. With inter-judge reliabilities of .86 for the compositions and .70 for the invented stories, the results confirmed the CAT as a reliable method to assess creativity in musical compositions and stories by the children. Recently, Horng and Lin (2009) adopted the CAT to evaluate creative culinary products. They asked nine culinary experts to rate creations made by 28 college students based on 34 criteria. Although the coefficient of .98 suggested a nearly unanimous level of agreement in the judge consensus, the researchers noted that the method might need additional process-based dimensions that allow judges to assess creativity in the production procedure.

Amabile initially emphasized the role of expert judges in the CAT process. Nonetheless, some researchers have proposed a variation in the selection of judges. Recruiting experts in a specific field may be difficult and expensive; therefore, Kaufman and his colleagues have tried to prove that non-experts could be qualified for the CAT. Kaufman et al. (2009) asked 10 writers, as expert judges, and 106 college students, as novice judges, to evaluate a sample of writings produced by 205 undergraduates. The results indicated high inter-rater reliabilities of .92 and .93 for the two judge groups. However, a correlation analysis showed that novice ratings could predict only 50% of the time in expert ratings. This suggests that novices could not replace experts in determining creative writings. In another study, Kaufman, Lee, Baer, and Lee (2007) argued that “the CAT is hampered by the time-consuming nature of the products (asking participants to write stories or draw pictures) and the ratings (getting appropriate experts)” (p. 96). To solve these two problems, the researchers offered caption-writings

as products for lay judges to assess. Four graduate students in psychology and history rated creativity in 81 captions produced by college students. Based on inter-judge reliabilities ranging from .58 to .81, the researchers advocated that captions could be a reliable sample of products for measuring creativity. We should note that the purpose of Kaufman et al. (2007) did not correspond to the aim of the CAT, which is to reflect the real-world judgment of creativity. Using non qualified judges may compromise the validity of the technique and misguidedly diminish the role of discipline specificity.

Assessments of creative interior design products

Barnard (1992) adapted the CAT to assess creativity in 18 interior design projects illustrating an enclosed entry space for an exhibition hall. The researcher recruited 13 educators and 31 practitioners as interior design experts to judge the projects created by female senior students enrolled in an accredited interiors program. To evaluate the design works, Barnard proposed 12 dimensions based on Amabile's (1983) main criteria: creativity, technical skills, and aesthetic aspects. These dimensions included creativity, novelty, originality, complexity, technical merit, functionality, craftsmanship, artistic merit, thematic expression, appropriateness, aesthetic appeal, and liking. Inter-rater reliabilities of all criteria showed acceptable agreement between educators and practitioners. Overall, creativity was highly associated with appropriateness, complexity, uniqueness, and originality. When analyzing ratings of the two judge groups separately, Barnard found that educators evaluated creativity in relation to the artistic and aesthetic merits rather than the technical and functional aspects. Conversely, designers rather considered creativity regarding the technical and functional qualities. This could be due to the nature of tasks in the judges' respective professions. When grading student projects, educators typically separate techniques and functions of the designs from the

more subjective aspects, such as aesthetics and creativity. In contrast, when practicing in reality, designers tend to separate aesthetics of design presentations from the more basic requirements of the designs, such as technicality, functionality, and creativity. As we can see, although the experts agree with each other on what creativity is, they might differently consider attributes in determining levels of creativity.

Examining evaluations of entry-level interior design portfolios, Levins (2006) attempted to shed light on criteria used in assessing portfolios. She used the CPAM as a primary theoretical model, emphasizing attributes of creative products: novelty, resolution, and style. In addition to the three dimensions, the researcher inserted overall creativity and hiring potential to connect the portfolio evaluation to its actual role in the hiring process. Levins employed 21 senior-level designers who practiced in the public sector to assess 12 digital portfolios created by graduating students from an accredited interior design program. The researcher utilized survey and interview methods to collect data. Judges assessed each portfolio on the given criteria using a quantifiable rating form, and then responded to open-ended questions to elaborate on their assessments. Inter-judge reliabilities of all criteria exceeded the acceptable level of .70. The results showed that the dimensions strongly related to one another. Overall creativity was influenced the most by novelty (originality of portfolios) and then style (appearance of portfolios). However, overall creativity, style, and resolution (functionality of portfolios) significantly affected hiring potential. The qualitative findings contradicted the assessment results. When discussing creative portfolios, practitioners mostly referred to the aspects of style and resolution rather than novelty. Further, designers recognized resolution as the most important attribute when defining creativity.

Based on the above studies, we see the importance of novelty in predicting overall creativity embodied in interior design products. This supports Pedersen and Burton's (2009) research indicating that design scholars often view novelty as a critical attribute of design creativity. Further, Barnard (1992) found that the other main attribute of creative design products was appropriateness, which is comparable to resolution as defined in the CPAM. Similarly, Levins (2006) indicated the leading role of resolution in creativity definitions and creative portfolios. These findings corresponded with the consensus of creativity definitions, which involves novelty and appropriateness.

Implicit theories of creativity

Dweck, Chiu, and Hong (1995) claim that: "Because people's theories are largely implicit or poorly articulated, systematic effort is required...to identify them and to map out their effects" (p. 267). The effort appears as the study of implicit theories, which concern perceptions of psychological constructs that laypeople hold in their mind (Plucker & Renzulli, 1999). Discovering people's implicit theories often focuses on people's communications that portray their notions regarding the construct under study (Sternberg, 1985). Giving a rationale for employing this approach in research, Sternberg (1993) stated: "In studying implicit theories, one is trying to find out what the stereotypes are, to find out how people process the information. It is important to know this, in part so that one can know where interventions should be made" (p. 16).

According to literature on creativity based on the discipline-specific approach, scholars have often utilized implicit theories to explore the nature of creative persons. Sternberg (1985) asked professors of art, business, philosophy, and physics to describe characteristics of creative talents in their correlated fields. Professors reported that the creative person appeared unorthodox, perspicacious, appreciative of the arts and

imaginative, intelligent and able to think differently, reflective and flexible, and energetic and goal directed. Interestingly, reinforcing domain specificity, the results also revealed that art professors accentuated originality, imagination, and experimentation as the creative attributes, while those in business emphasized the ability to develop new ideas. In a related study tapping into perceptions of creativity in design professions, Portillo (2002) employed implicit theories to examine creativity conceptions of faculty in interior design, architecture, landscape architecture, and engineering. Assessing professors' perceptions, the researcher utilized the Adjective Check List (ACL) to embody traits of the creative person. The findings showed that over 75% of the professors agreed that creative interior designers, architects, landscape architects, and engineers were imaginative, inventive, and adventurous. In focusing on interior design, the creative designer appeared significantly more individualistic and original than those in the other three disciplines. Further, the profile of the creative designer related more closely to the creative landscape architect than either the creative architect or engineer. These results support the role of domain-specific aspects of creativity even in allied design disciplines.

Creativity across Cultures

Given the importance of creativity and the current view that it appears normally distributed, there is no doubt that creativity attracts interest from countries around the world. Trying to understand the phenomenon better, scholars in many nations have paid attention to creativity research; however, their focuses seem varied. For example, while U.S. scholars place an emphasis on both theoretical and applied works on creativity (Baer & Kaufman, 2006), Asian researchers mostly focus on applications of creativity in educational and organizational settings (e.g., Choe, 2006; Niu, 2006).

Worldwide Research on Creativity

Examining the state of creativity research worldwide, in *The International Handbook of Creativity* (Kaufman & Sternberg, 2006), prominent scholars reviewed research on creativity in over 80 countries. In the final chapter, Simonton (2006) indicated variations in these nations' studies on creativity in that:

[B]ecause each national tradition is a distinct cultural creation, this research is by no means homogenous. On the contrary, the research carried out in each part of the world to some extent reflects the special needs, values, and concerns of a given heritage. (p 490)

Simonton also summarized that cultural traditions influence the global state of creativity research according to the following three issues. The first issue discussed two main aspects of studies on creativity: basic and applied. Basic research, which addresses fundamental questions about the nature of creativity, has gained attention from creativity scholars mostly in developed nations, such as the United States and France. Recently receiving greater attention, applied research, which explores practical applications of creativity, has been striking in industrialized nations, such as South Korea and Taiwan, where creative talent can elevate their status in the world economy. Additionally, applied research has mostly focused on two areas: creativity in education and in the workplace; by far, studies on creativity in education have dominated applied research. Leung et al. (2004) inserted that cross-cultural creativity studies have concerned creativity in learning settings rather than in organizations.

The second issue regarded theories on creativity across cultures. Thanks to the prevalence of applied research, there is a paucity of developing new theoretical views on creativity. Creativity researchers worldwide have scrutinized the construct based on Western classical theories, such as Guilford's (1950) structure of intellect model,

Torrance's (1962) creative thinking theory, and Csikszentmihalyi's (1988) systems view model. The final issue concerned methodological techniques used to investigate creativity. Among numerous methods, the psychometric methodology, which posits that creativity can be quantified by appropriate measures (Mayer, 1999), has dominated creativity studies across nations. Specifically, Torrance's (1998) Tests of Creative Thinking (TTCT) have become the most widely-employed measure universally due to its repute, reliability, and convenience to use. TTCT gauges creativity in writing and drawing responses based on four dimensions: fluency, flexibility, originality, and elaboration. Lung et al. (2004) argue that although the test seems to be objective, cultural biases can considerably affect interpretations of responses. Hence, researchers should be wary to employ the instrument in any cross-cultural study.

Issues on Cross-Cultural Creativity Research

Cultural influences do not appear only in creativity measurements. Lubart (1999) proposes that culture affects "the conception of creativity, the creative process, the direction of creativity toward certain domains of activity or certain social groups, and the extent to which creativity is nurtured" (p. 339). To fully understand the complex nature of creativity, we should also investigate its contextual attributes. This implies the need for more studies on creativity in different cultural contexts. About a decade ago, Raina (1999) argued that "most of the [creativity] research has been nation-oriented rather than inter-national, resulting in the neglect of cross-cultural research" (p. 454). However, the current literature on creativity has indicated that scholars increasingly pay attention to cross-cultural studies (e.g., Chen et al., 2005; Kim, 2005; Leung et al., 2004).

Lau, Hui, and Ng (2004a) reviewed research on creativity in the East and the West, which basically focused on the Chinese and U.S. points of view. The researchers

found three critical drawbacks in interpretations of creativity across cultures. The first pitfall shows that Western researchers regularly describe Oriental cultures and behaviors regarding some ideology, such as Confucianism, and concepts, such as collectivism. Cheng (2004) and Lau (1996) claim that, besides Confucianism, other religious philosophies, such as Taoism and Buddhism, have also dominated Asian cultures. Second, holding the Western view on creativity to assess Eastern creative talent, researchers from the West usually consider Eastern behaviors and beliefs, such as conforming, group-oriented, and face saving, as barriers to cultivating creativity. Finally and most importantly, studying creativity in the East or across cultures, some Eastern scholars have employed the Western view “without any questioning even in light of weak or opposing evidences” (Lau et al., 2004a, p. 2).

For instance, based on the Western conception of creativity, Kim (2005) described that characteristics of Asian societies, including tightly organized society, collectivism, hierarchical organization, and face-consciousness, limit the ability of Asians to think, feel, and act creatively. Kapur, Subramanyam, and Shah (1997) asked 20 Indian scientists about creativity in Indian science. Surprisingly, most of the scientists refused creativeness in their field and described themselves as being less creative than Western scientists. Responses included “there is no real creativity in India” and “in India most people take the easier path and have [a] complacent attitude” (p. 174). The scientists exposed that cultural factors related to obedience, religion, and social etiquette hindered their development of creativity, and the emotional connection to others in their society caused lack of independence, which is an attribute of creativity in the West. These cases could critically mislead an understanding of Eastern creativity.

Similar to Lau et al. (2004a), in a constructive review of literature on cultural variations in creativity, Westwood and Low (2003) state that using Western theories, conceptions, and research to examine creativity in other contexts often results in three typical problems. First, it tends to impose a universalistic concept in interpreting creativity processes, structures, and functions. The second problem is to prefer one approach to creativity while devaluing other approaches. The final problem entails accepting a false generalization, overemphasizing assumed cultural differences, and reflecting them in “the form of simplistic and polarizing dimensions” (p. 237). To address these problems, the authors recommended an insight into the culture in question. It is important to state that adopting the Western approaches and methodologies to study creativity in the East is not prohibited; however, the core statement is that we should involve contributions of local experts familiar with a given culture and should be more critical of the interpretation.

Definitions of Creativity across Cultures

Misra, Srivastava, and Misra (2006) affirm, “Creativity is undoubtedly universally valued, but diverse cultures do appear to selectively nurture specific domains of creativity” (p. 422). As a consequence, each culture affects and defines creativity differently. In a classic review of research on creativity across the East and the West, Lubart (1990, 1999) broadly differentiated creativity conceptions held in the cultures. In general, the Western perception views creativeness regarding a novel and appropriate product. On the other hand, the Eastern conception places a focus on the value of the internal process for the individual rather than the value of the outcome.

Lubart also claims that cultural creation myths and religious beliefs affect concepts of creativity in each culture. Westerners usually consider that both human creation and

creative processes appear in a linear movement toward a new point (von Franz, 1995). We can see the linear pattern in many process models of creativity, such as the four stages of the creative process: preparation, incubation, illumination, and verification (Wallas, 1926). In contrast, Easterners view the human creation and creative processes as a circular conception. Creation does not necessarily mean newness; it can represent reinterpretation or rediscovery. According to Hallman (1970), a Hindu perspective views creativity as a spiritual process of re-discovery. “To create is to imitate the spiritual...to make traditional truths come alive and become operative in daily affairs” (p. 373).

Many cross-cultural creativity studies (e.g., Chen et al., 2005; Misra et al., 2006; Raina, 1999; Westwood & Low, 2003) have referenced Lubart’s review of the cultural differences in creativity perceptions. However, Paletz (2003) argued that studies that Lubart reviewed involved serious defects that could misrepresent actual conceptions of creativity, especially in the East. Paletz pointed out that the reviewed studies relied on incomparable evidence from the cultures, such that they compared psychological data from the West with anthropological data from the East. Moreover, we should be skeptical whether Western explicit theories of creativity could be compared with Eastern implicit theories of creativity, and whether Western scientific empirical work could be compared with Eastern philosophies.

In her dissertation research, Paletz (2003) employed the cross-cultural psychological lens to examine how East Asians and Americans valued novelty and appropriateness as the attributes in the consensus definition of creativity. A sample consisted of 109 Chinese, 177 Japanese, and 239 American college students. To explore cultural differences and similarities in perceptions of creativity, the researcher

utilized many questionnaire instruments, including a scenario and product assessment on the novelty and appropriateness dimensions. Overall, the findings revealed that the three cultural groups all recognized novelty in their judgments of creativity. As Lubart (1999) suggested, in assessing creativity, the importance of newness appears the same across cultures. The cultural variation existed in the aspect of appropriateness. American and Japanese students seemed to value this aspect in creative products more than their Chinese counterparts. This implied that the American and Japanese conceptualized creativity in the same way, but differently from what the Chinese perceived. As Kwang (2001) states, "Although Asian societies are fundamentally different from Western societies, it should be pointed out that Asian societies...are not totally homogenous entities" (p. 25). This reminds us that not all Asian cultures are the same, so they may not perceive creativity in the same way either.

Current Applicable Studies on Creativity across Cultures

In line with the variation in defining creativity across countries, cross-cultural creativity works appear diverse. To address the research questions, this dissertation study reviews studies that are most relevant to the creative product and U.S. and Thai perspectives on creativity, as the research focuses. The present section firstly presents cross-cultural studies on the assessment of creative products. These works represent the majority of cross-cultural creativity research which mostly involves American and Chinese cultures (Kaufman & Sternberg, 2006; Lau et al., 2004; Nui & Sternberg, 2001). Afterward, since U.S. research on creativity was discussed earlier in the chapter, this section specifically focuses on Thai creativity studies.

Assessments of creative products across cultures

Niu and Sternberg (2001) explored cultural impacts on creativity in artistic tasks and their assessments. A sample of 76 American and 63 Chinese college students made a collage and drew an extra-terrestrial alien. The researchers recruited nine American and nine Chinese graduate students in psychology without artistic training to judge the collages and drawings based on creativity, likeability, appropriateness, and technical quality. The judges assessed all artworks relative to one another and rated each of them on a 7-point scale. The results showed that creativity appeared highly related to likeability, one of the aesthetic qualities in the artworks. Evaluations of both judge groups did not indicate that judges favored products from their own culture over those from the other, which suggested no cultural biases in assessments. Chinese judges had higher concurrence on their judgments than American judges. Additionally, American raters tended to set a higher standard than their Chinese counterparts when rating dimensions of creativity, likeability, and technical quality.

Chen et al. (2002) also examined cultural impacts on artistic creativity and its evaluation. Similar to the previous study, 50 European American and 48 Chinese undergraduates in social sciences created drawings of three geometric shapes: triangle, rectangle, and circle. The researchers asked six European American and eight Chinese college students enrolled in social science courses to evaluate a total of 294 drawings on creativity, uniqueness, technical quality, and liking, using a 5-point scale. Evaluations of the judge groups revealed significantly high inter-judge reliabilities on every criterion, which indicated no significant cultural biases in this study. Supporting the above study, a correlation coefficient of .95 in this research confirmed a high relationship between creativity and liking, one of the aesthetic aspects of the drawings.

Exploring correlations among age, culture, levels of artistic skills, the technical and aesthetic qualities of drawings, and artistic giftedness, Rostan, Pariser, and Gruber (2002) compared assessments of drawings between North Americans and Chinese North Americans. The researchers gathered drawings created by 160 children with different levels of artistic skills in different age groups and juvenile drawings of 32 acclaimed Western artists whose adult works were accepted as highly creative. The authors classified a total of 89 drawings into two types: life and imagination. A panel of judges included 15 North Americans educated in North America and 15 Chinese North Americans educated in China. Judges assessed the drawings on aesthetic success, technical skill, and creativity, using a 7-point scale. Only North American judges rated life drawings of children with a high level of artistic skills more creative and technically and aesthetically successful than those of children with a low level of artistic skills. Both groups of judges evaluated the juvenile drawings with the highest scores on technical skill and lowest scores on creativity, which endorsed an important role of technical skill in developing artistic creativity potential.

Thai studies on creativity

There is a paucity of creativity research conducted in or even referring to Thailand. Many Thai creativity scholars have written their research papers in Thai. Moreover, most of the literature on creativity has been located in local libraries, which means it is inaccessible online. Based on the limited body of current Thai creativity research, the researcher selected two studies originally written in Thai to review since they are most pertinent to the present study and constructive for addressing the research questions.

Saengpanya (2005) reviewed previously published studies and pointed out three problems in Thai creativity research. The first one concerns a definition of creativity. The

majority of Thai scholars have defined creativity as an individual's divergent thinking based on the impact of Western classic theories (e.g., Guilford, 1967; Torrance, 1962, 1988). Saengpanya suggested that, instead of emphasizing only the person, Thai creativity scholars should also include the process and the product into the definition. The second problem results from the definition. Thai researchers have mostly relied on tests of divergent thinking, especially Torrance Tests of Creative Thinking (TTCT), to assess creativity of an individual. However, Thavornrattanavanich (1998) argued that the TTCT could not predict a person's ability to perform creatively in reality. The final problem concerns a research sample. Thai creativity studies have usually recruited elementary- or secondary-school students as a research sample, which limits research applications to enhance creativity ability of college students and adults in Thailand.

Addressing these issues, Saengpunya (2005) conducted a case study to examine highly creative Thai professionals in three different areas to provide an insight into Thai creative talents across disciplines. The sample contained nine eminences in sciences ($n = 3$), arts and design ($n = 3$), and education ($n = 3$). All of the participants had received national recognition and took part in innovative revolutions in their respective fields. The researcher employed mixed instruments, consisting of the in-depth interview, Myers-Briggs Type Indicator (MBTI), and Maudsley Personality Inventory (MPI), to collect data. The findings disclosed common personalities shared by the creative professionals, including open to new experiences, love to learn and solve a problem, enjoy thinking and reflecting processes, respect aesthetic and originality values, highly engage and commit to their works, consider themselves as creative, and have sensational feeling; only practitioners in the arts and design area described imagination in their creations.

Additionally, Saengpunya examined the eminences' creative performances based on Besemer and O'Quin's (1986) three criteria: novelty, resolution, and style. The researcher concluded that creative works in the disciplines under study had very high quality of resolution, representing appropriateness and practicality of the performance. However, only works in sciences and arts and design contained high quality of novelty and style, showing newness and stylistic qualities of the product. Compared to works in the other areas, scientific creative outcomes appeared complicated but not appealing, whereas artistic creative products showed neatness and compositional appeal. Creative works in education appeared well-understandable. The researcher also noted that the eminences considered novelty most important in developing creative products in their fields; however, they had the most difficult time to express the quality of newness in their works. Interestingly, although this study employed a small sample size, the findings seemed comprehensive and offered a constructive image of highly creative Thai persons in diverse areas.

In contrast, employing a large sample size, Panjamawat (2005) adopted the quantitative approach to scrutinize creative thinking of Thai undergraduates. The researcher recruited 288 students majoring in the following disciplines: humanities, biological sciences, social sciences, and physical sciences and technology which included architecture. Research instruments contained TTCT measuring levels of creative thinking based on fluency, flexibility, originality, and elaboration, Advanced Progressive Metrics gauging levels of intelligence, MBTI identifying types of personality, and a questionnaire asking about demographics, motivation, and environments. The findings from the TTCT showed that, compared to the norm, Thai college students

generally had the medium level of creative thinking. In looking at the four dimensions, on average, Thai undergraduates had the high level of elaboration, the medium level of fluency, and the low level of originality and flexibility. Correspondingly, Supapon (2004) found that Thai college students could think creatively in the medium level and had the low level of originality. A comparison among the fields under study indicated that students in biological sciences performed significantly better than those in the other majors on overall creative thinking, fluency, originality, and flexibility. A possible explanation could be that teaching and learning in biological sciences highly focused on scientific process, which reflects creative thinking process. It is important to note that this research revealed the overall level of creative thinking in Thai college students, but did not suggest how the results related to students' creative performance in their respective disciplines.

Summary

This chapter starts by reviewing pertinent literature on creativity based on the Western point of view. Glăveanu (2010) proposes three main paradigms of creativity research: He, I, and We. Shifting a focus from geniuses to persons in the first two periods, creativity scholars have emphasized individual and contextual influences on creativity in the We-paradigm. Recent definitions of creativity also reflect the two factors. Regarding Mooney's (1963) four Ps framework, creativity involves persons, processes, products, and/or physical and social environments. The consensus on novelty and appropriateness concerns a person's ability to create a new product that is also appropriate to its relevant context. In the design field, Pedersen and Burton (2009) claim that the majority of scholars often value the novelty aspect in describing creativity.

With the discipline-specific perspective, applicable approaches to the present study comprised confluence approaches, particularly Csikszentmihalyi's (1988) systems theory involving interactions among persons, domains, and fields. With a focus on the creative product, the present chapter reviews the most widely used measures of creative products: the Creative Product Analysis Matrix (CPAM) and Consensual Assessment Technique (CAT). The CPAM supports the domain generality, whereas the CAT accentuates the discipline specificity of creativity. Studies on evaluations of creative interior design products have adopted both methods.

The other part of the chapter reviews relevant literature on creativity across cultures. As Simonton (2006) concluded, worldwide creativity research has focused on applied research, especially in learning settings and workplaces. Creativity research worldwide has mostly relied on Western views and theories. Lau et al. (2004a) and Westwood and Low (2003) argue that the use of Western views in another context without critical considerations could cause cultural biases and mislead concepts of creativity. Focusing on perceptions of creativity in the West and the East, Lubart (1990, 1999) proposes that Westerners consider creativity in terms of products, while Easterners emphasize the value of internal processes behind products. Paetz (2003) doubted Lubart's review with incomparable evidence from the two cultures. In her study, she found that the American and Japanese conceptualized creativity in the same way, but differently from the way the Chinese perceived.

Applicable studies to the present research included assessments of artistic tasks across cultures (Chen et al., 2002; Niu & Sternberg, 2001; Rostan et al., 2002). The studies compared judgments of Chinese and American samples and found no

significant cultural biases between the two judge groups' evaluations. In looking at creativity research in Thailand, this review encountered little literature, but found pertinent studies. Saengpunya (2005) claims that Thai scholars mostly associate creativity definitions with divergent thinking and utilize divergent thinking tests to gauge creativity in a sample of school students. Studying Thai creative talents and their works, Saengpanya revealed that eminences considered novelty as the most important aspect of creative outcomes; at the same time, it was very difficult for them to express novelty in their performance. Using Torrance Tests of Creative Thinking, Panjamawat (2005) exposed that Thai college students, as a whole, had a high level of elaborate ideas, but had a low level of original ideas.

CHAPTER 3 METHODOLOGY

Introduction

Probably every researcher has a Mount Everest or two which he dreams of mastering....In creativity, too, there are several heights to which researchers would rise....There is, however, one Mount Everest which we are close to conquering...over the past two decades. That goal is to devise an easily administered and mechanically scored test which will predict actual, real-world creative behavior. (Davis, 1975, p. 75)

Thirty-five years ago, Gary Davis, a pioneer in studying creativity, claimed that researchers appeared on the cusp of developing a measure to gauge creativity. At that time, the researchers focused on assessments of creative persons and processes as the key to the holy grail of creativeness (Albert & Runco, 1999). Nevertheless, none of them has yet been able to unlock the myth of creativity. Possibly, those researchers may have underestimated the diverse facets of creativity. In the past decades, creativity scholars have realized that, besides the person and process, the multi-dimensioned nature of creativity involves other aspects, such as social systems and disciplines. This has hampered the development of the absolute measure to fully assess creativeness (Kaufman, Plucker, et al., 2008).

Similarly, Davis (1975) posits two reasons hindering the improvement of creativity assessment. First, creativity appears in various forms, thus an instrument that will completely gauge the phenomenon should be very general. Second, it is difficult to validate whether a tool really measures creativity, and not other closely related criteria such as intelligence of a person or aesthetic appeal of a product. In line with this, Piirto (2009) states that current measures of creativity fall short in validity. Surveys, such as the Adjective Check List, and divergent thinking tests, such as the Torrance Tests of Creative Thinking may highly correlate to other standardized tests. However, they

merely assess a facet of creativity, such as a person's creativity traits or divergent thinking skill, and need other measures to fully reflect his/her creative performance in reality. Likewise, a product or performance evaluation may capture the essence of real-world creativity, but it seems to lack relations to standardized tests. This reinforces creativity as a multi-faceted construct which needs multiple methods to assess. Giving a suggestion for developing an instrument, Treffinger (1987) proposes that creativity assessment becomes formidable owing to lack of a unifying theory to guide scholars; nevertheless, using broad categories in creativity frameworks could help direct researchers to develop an effective creativity measure.

Among proposed frameworks, creativity researchers have mainly employed the four Ps aspects of creativity, involving creative persons, processes, products, presses or environments (Feldhusen & Goh, 1995; Kaufman, Plucker, et al., 2008). Some scholars also include persuasion, the ability to persuade others of creative merit essential to making ideas a reality (e.g., Dudeck & Hall, 1991; Mumford et al., 2002; Simonton, 1990). Most creativity researchers believe that understanding the creative person is the key to understanding creativity. Thus, the majority of proposed instruments gauge individuals' creativity traits and cognitive factors. Some scholars focus on the creative process, while others have more interest in an output of the process – the creative product. Creativity assessment rarely highlights the press and persuasion, except retrospectively in the biographies of highly creative talents.

Besides the above aspects, Amabile (1982) maintains that two broad approaches frame creativity measurement: paper-and-pencil tests and judge evaluations. Creativity tests have been basically developed to assess creativity in either the person or process.

The prototype for many other tests is the Torrance Tests of Creative Thinking (TTCT; Torrance, 1998). The TTCT has become the most widely-used creativity instrument because it assesses a test taker's creative problem solving skill and highly relates to other standardized tests. Due to its simple administration, the test has been translated into at least 35 languages and employed in many countries (Kim, 2006). However, scholars have continually reported limitations of the TTCT. Millar (1995) and Saeki, Fan, and Van Dusen (2001) found that cultural factors can affect and distort scores of the tests. Most importantly, the TTCT has been claimed to have questionable psychometric quality and to measure divergent thinking ability rather than creativity (Almeida, Prieto, Ferrando, Oliveira, & Ferrández, 2008; Kaufman, Plucker, et al., 2008).

The judge evaluation approach tends to evaluate real-world creative performance better than the test approach. Recently, proposed instruments using judges to assess creativity have placed an emphasis on the product (e.g. Amabile, 1996; Balchin, 2006; Besemer & Treffinger, 1981; Horng & Lin, 2009; O'Quin & Besemer, 2006). The most regarded judge-evaluation measurements include Besemer and Treffinger's (1981) Creative Product Analysis Matrix (CPAM) and Amabile's (1982, 1996) Consensual Assessment Technique (CAT). Although both of them focus on assessing creativity in a product, they maintain different perspectives on abstract value of the creative product. On the one hand, the CPAM aims to establish a common, objective metric for everyone to evaluate creative works. On the other hand, the CAT reinforces domain-specific creativity by relying on experts' subjective definitions of creativity in outcomes.

As we see in the above review, there have been many proposed measurements, but none of them can completely assess the complex nature of creativity. This may be

because the majority of creativity assessment has favored the quantitative research approach. Mayer (1999) posits that a critical challenge for creativity studies in the 21st century is “to use a combination of research methodologies that will move the field from speculation to specification” (p. 459). Creswell (2009) also supports that the use of either a quantitative or qualitative approach by itself is insufficient to solve this complex problem. Thus, a mixed-methods approach, which is “another step forward, utilizing the strengths of both qualitative and quantitative research” (Creswell, 2009, p. 203), can help us achieve the complexity in creativity research.

The current dissertation research focuses on the creative product as the fruits of the person, process, and press. The research purpose is to examine the assessment, attributes, and definition of creativity in the context of interior design across Thai and U.S. viewpoints. To accomplish the objective, this study employs the judge evaluation and mixed methodology approach. The researcher asked Thai and U.S. experienced designers to assess Thai entry-level interior design portfolios in a digital version and to elaborate on their evaluation and personal perception of design creativity. This chapter illustrates the research methodology by addressing the study design, the pilot study and development of portfolios for assessment, the sample of portfolios, the participants, the assessment method, the instruments, and the study procedure.

Study Design

To thoroughly examine creativity in the context of interior design, this dissertation study employs a field-based research approach requiring the researcher to collect data from participants in an actual setting. Field-based research offers an insight into a phenomenon under study and enhances generalizability of study results to a real-world situation (Bogdan & Biklen, 1998). Figure 3-1 illustrates the overall methodology used in

this research. The first step was to develop a set of portfolios to assess. The present study utilized portfolios in a digital version because of a recent trend in the design market that favors convenient and economical aspects of digital portfolios (Linton, 2008). From a total of 23 portfolios created by a class of Thai interior design students, six pilot judges with experience in practicing and reviewing portfolios in interior design agreed on 12 portfolios as a sample to review. The chosen portfolios exhibited a range in quality: high-, medium-, and low-creative. The next step was to recruit appropriate expert judges. The researcher asked 20 Thai and 16 U.S. senior-level designers, who review portfolios and make hiring decisions for their design firms, to assess the sample of portfolios on overall creativity, hiring potential, and creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal.

In the data collecting process, the present research utilized mixed-methods study design where “the researcher converges or merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem” (Creswell, 2009, p. 14). The researcher integrated survey and interview methods into a three-stage data collection. The first stage was to show designer participants an overview of selected portfolios. Then, the designers evaluated each portfolio individually. Finally, the designers responded to questions regarding their portfolio assessments and personal concepts of design creativity. With an emphasis on quantitative data, 75% of the overall data came from the portfolio evaluation, while the other 25% were qualitative data gathered from the interview. The use of both quantitative and qualitative data as a source of triangulation enhances the confidence of the analysis (Denzin, 1984; Drew, Hardman, & Hosp, 2008). Additionally, the researcher analyzed data from the portfolio

assessment using descriptive and inferential statistical analyses, and analyzed interview responses using content analysis. Findings from both analyses were also examined to determine whether they corresponded to each other or not.

Pilot Study and Development of Portfolios for Assessment

Any research projects should conduct a pilot study in order to mitigate any problems and oversights that might occur in the full study (Drew et al., 2008; Gall, Gall, & Borg, 2007). In the present research, a two-phase pilot study was conducted prior to the data collection. The researcher conducted the first phase of the pilot test in Bangkok, Thailand. Purposes of this pre test were to classify collected portfolios into groups for a sample selection and to examine the quality of the tools and procedures. Then, the researcher carried out the second phase in Florida to evaluate the range of selected portfolios and to test the revised instruments and procedures.

In the first phase of the pilot test, four Thai interior practitioners, who possessed characteristics of the research participants, participated in the portfolio evaluation. All of them were interior designers with more than five years of professional experience. They also had experience reviewing portfolios and were involved in making hiring decisions. A sample of design portfolios included 23 portfolio drafts in a digital format created by Thai senior interior design students. The sample was presented using a Microsoft Office PowerPoint slide show that was displayed on a laptop computer. To control the equality of all the portfolios, a total of four slides were allotted for each portfolio. The researcher arranged portfolios in random order to prevent confounding factors related to the sequential order and judges' fatigue.

The evaluation procedure started by showing each designer an overall slide show so that he/she could have an overall sense of the portfolio quality. Then, with no time

restrictions, a designer judge viewed the slide show and assessed the portfolios based on 13 provided dimensions, consisting of aesthetic appeal, appropriateness, cohesion, craftsmanship, elaboration, functionality, novelty, originality, surprise, technical quality, overall creativity, personal preference, and potential to be hired. The researcher allowed the designer to manually display each slide, while recording the time he/she spent reviewing each slide. After completing the evaluation, each judge responded to interview questions and gave feedback on the evaluation instrument and procedure.

Results from this pre test showed that the 23 portfolios represented a range in quality and appeared to vary in terms of their perceived levels of creativity, classified into excellent-, average-, and poor-creative groups. Due to the demanding evaluation session, all of the pilot judges agreed that in the actual study if the number of slides increased, the number of portfolios should decrease. Further, they argued that 13 dimensions seemed to be taxing for the judges to assess a portfolio. Importantly, the pilot test showed that an hour seemed to be the maximum amount of time that the designers could realistically devote to the study.

Based on the judges' comments and a further review of previous published literature to see which dimensions of creativity appear most frequently, the researcher reduced the assessment from 13 to 6 dimensions: novelty, appropriateness, technical merit, aesthetic appeal, overall creativity, and hiring potential. Since the pilot judges spent a range of time, from 35 to 70 minutes, assessing the portfolios, the researcher timed the overview and evaluation slide shows employed in the actual study in order to eliminate external factors related to time spent evaluating portfolios. Additionally, once the first pre-testing stage was completed, the researcher and designer judges sorted

portfolios into groups exhibiting high ($n = 4$), medium ($n = 4$), and low creativity ($n = 4$); these 12 portfolios became the sample of portfolios in the final study.

In the second phase of the pilot study, the researcher asked two interior design educators from University of Florida to participate. Both of them practiced in interior design and had experience reviewing design portfolios. Each educator was scheduled for a one-hour block to complete the assessment. The educators began with viewing an overall slide show of the 12 portfolios; this slide show contained 197 images timed to advance to the next image after a second. Then, the educators individually evaluated each portfolio by watching another slide show timed to play the next slide after ten seconds. Each portfolio was identified by a portfolio number and a white blank slide placed between portfolios allowed for a visual break. Finally, the researcher asked the educators to respond to interview questions.

The educators agreed that the sample of portfolios exhibited a range in quality. Table 3-1 presents creativity rankings of the portfolios evaluated by expert judges. Thai and U.S. designers, as the actual raters in this study, did not rate low-creative portfolios as low as the pilot judges did. However, Figure 3-2 shows that the designers' judgments of the portfolios generally corresponded to the pilot judges' evaluations. This affirms validity of the selected portfolios. Also, the educators viewed that 12 portfolios seemed appropriate for the one-hour assessment process, but the portfolio slides ran too quickly to assess the criteria reliably. Further, the white slide separating portfolios, instead of offering visual relief, created a strong contrast distracting the judges. In the interview phase, the faculty members also mentioned that it would be helpful to see the portfolios a second time to allow for more specific feedback. Based on this comment, the finalized

assessment included fewer slides (184 slides) and allowed for the increased viewing time. For the slide show, the researcher used a neutral grey slide to separate the portfolios; this seemed to work well. Moreover, twelve boards of 14"x17" heavy stock paper featured thumbnail examples of each portfolio and its projects to give the designers a ready reference during their interviews.

Sample of Portfolios

A portfolio plays an important role in allied design areas as a tool for assessing a designer's skill sets, creative talent, and potential for future achievement (Linton, 2003). An entry-level portfolio represents a passport enabling design students to cross from the educational to the professional world. Designers traditionally create their portfolio in a print format; however, nowadays a digital version of the portfolio – whether it is a Web site, slide show, or PDF, seems to increasingly gain preference from innovative design firms (Eisenman, 2006).

The sample of design portfolios employed in this study consisted of 12 Thai entry-level interior design portfolios presented in a digital format. These portfolios were the property of Thammasat University from the Department of Interior Architecture's graduating class of 2009. The present study selected the Interior Architecture program at Thammasat University because of its institutional standing and innovative curriculum in Thailand. In the country, Thammasat University is one of the top two most prestigious universities. Among more than 30 institutes offering an interior architecture/design program, Thammasat University has been ranked as third on the nation's top interior architecture /design schools list ("Annual Report," 2009). The selected interior architecture program is also the country's first institute offering a four-year interior architecture curriculum emphasizing research, analysis, and multi-disciplinary

knowledge. The program mission underscores the role of creativity: “The thoughtful combination of courses and experiences will provide students an opportunity to develop knowledge, skills, and insights needed to solve design problems creatively and effectively” (“Faculty of Architecture and Planning,” 2006, p. 8). Based on this premise, the curriculum and faculty encourage students to develop their design projects, including a portfolio, innovatively and appropriately.

When originally submitted, the 12 portfolios were in different digital formats and included a varying range of projects. The largest portfolio contained 67 images while the smallest had eight images. To help standardize the sample, the researcher employed only the following projects: a corporate and hospitality project, a product design work, and an individualized thesis project, to represent each portfolio. These projects were chosen since they matched with design specialties of practitioner judges. Further, the researcher formatted the portfolios into a single Microsoft PowerPoint slide show while maintaining the content and integrity of the portfolios exactly the same as their original formats. The background of portfolio slides was neutral grey. The number of slides contained in each of the portfolios ranged from 8 to 21 with an average of 15.33 slides.

Participants

The present dissertation research recruited a total of 36 Thai and U.S. designer participants from 17 design firms selected based on specific criteria: location, services, and professional stature. Twenty Thai participants came from nine Bangkok-based firms and 16 U.S. participants came from eight Atlanta-based firms (Table 3-2). Bangkok is the capital and most highly populated city of Thailand (“The Largest Cities,” 2007; “Population and Housing Census,” 2000). Bangkok is also the economic center housing the country’s major businesses including a comprehensive design district (Mauriello,

2009). Compatible to Bangkok, Atlanta is the capital and most populous city in the state of Georgia. As one of the fastest growing urban areas in the U.S., the city offers a competitive design market in the Southern Region (Apple, 2000). Additionally, design cultures in these two cities, which emphasize international design styles in medium-sized urban areas, appear well-matched.

As Figures 3-3 and 3-4 illustrate, the chosen design firms offered a similar scope of services, including but not limited to corporate, hospitality, residential, retail, education, healthcare, education, government, mixed use design, cultural, and transit design. One firm appeared to be more generalized in nature. All of the firms have received awards and honors in the architecture and design fields. The participating Thai firms have been influential in Thailand's design market. IA49, PIA, P49 Deesign, and Design Worldwide Partnership (DWP) have been widely known as leading design firms, always receiving awards and recognitions in local and worldwide design publications (e.g., "ASA Award 2010," 2010; "Awards," 2009; Shollenbarger, 2008). Design103 and Steven J. Leach Jr. have been ranked as Thailand's top 10 architecture firms by BCI Asia – a prominent Southeast Asian-based project leads service ("Top 10 Awards," 2010). SODA, Space Matrix, and TID have continually presented cutting edge and innovative designs to the field. Of the eight U.S. firms involved in the study, five firms: Gensler; Perkins+Will; HOK; TVSdesign; and Smallwood, Reynolds, Stewart, Stewart & Associates (SRSSA), have been recognized by *Interior Design*, a leading national design magazine, as the top 100 interior design giants of 2009 (Davidsen, 2010). The other three firms: ai 3, Idea|Span, and Jova/Daniels/Busby, have garnered design awards and have had projects featured in national and/or regional trade publications.

After compiling a list of firms that met all the criteria, the researcher chose designer participants from each firm based on their position and responsibilities. Since this dissertation research involved the portfolio evaluation, the participants should have experience in reviewing portfolios of entry-level design applicants. To garner a sample of more seasoned designers, experienced in the portfolio review, a participation request letter was sent to the senior-level designers at each firm. The letter described the study, its purposes, and the amount of time anticipated for participation (Appendix A). The researcher also made a follow-up telephone call and sent an email to the designers a week later asking for participation.

Of the 35 Thai designers solicited over a period of seven weeks, 24 designers agreed to take part in the research. However, four designers had conflicts with their scheduled time blocks. Attempts to reschedule with these designers were made, but eventually they could not participate in the study. Of the 23 U.S. design practitioners solicited over a period of three weeks, 17 practitioners agreed to participate in the study. Nonetheless, after reviewing the participants' credentials, one designer who had no experience in reviewing portfolios was eliminated from this sample. As a result, the sample of Thai participants comprised 20 designers, and the sample of U.S. participants consisted of 16 designers. Of the 58 designers solicited, 36 designers participated in the present study. This was a 62% response rate (57% for Thai practitioners and 70% for U.S. practitioners), which is considered high for field-based research (Gall et al., 2007).

In the Thai participant sample, 40% of the participants ($n = 8$) were female, and the other 60% ($n = 12$) were male. Table 3-3 summarizes the Thai participants' undergraduate background, including a Bachelor of Design with Major in Interior Design

(n = 1), a Bachelor of Science with Major in Interior Design (n = 2), a Bachelor of Industrial Design with Major in Interior Design (n = 3), a Bachelor of Architecture with Major in Interior Architecture (n = 2), a Bachelor of Architecture with Minor in Interior Design (n = 1), a Bachelor of Architecture (n = 3), and a Bachelor of Fine Arts (n = 8). Eight design practitioners also had their Master's degree in Arts, Fine Arts, Interior Design, Interior Architecture, Architecture, Architectural Administration and Management, or Science in Construction Management.

In the U.S. participant sample, 37.5% of the participants (n = 6) were women, and the other 62.5% (n = 10) were men. As shown in Table 3-3, the U.S. participants' undergraduate background consisted of a Bachelor of Science with Major in Interior Design (n = 2), a Bachelor of Design with Major in Interior Design (n = 2), a Bachelor of Architecture with Minor in Interior Design (n = 1), a Bachelor of Architecture (n = 5), and a Bachelor of Fine Arts (n = 6). Three practitioners who had a Bachelor of Architecture also had a Master's degree (one in Landscape Architecture and two in Architecture).

The researcher classified all of the participants (n = 36) into four groups based on their job position (Coleman, 2002). Table 3-4 presents the number of the Thai and U.S. participants in the four groups: *Principal* includes executive partner and principals (n = 8); *Design Director* includes design director, managing directors, vice-presidents, and associates (n = 22); *Senior Designer* (n = 4); and *Designer* (n = 2). As a whole sample, the participants had been practicing interior design or architecture for an average of 19.17 years and had reviewed portfolios for an average of 8.94 years. The mean number of portfolios the participants reviewed per year was 12.49 portfolios (Table 3-4). Additionally, Independent-Samples *t* tests indicated that, on average, U.S. participating

designers had significantly higher experience in practicing design ($t = 2.285, p = .033$) and in reviewing portfolios ($t = 2.866, p = .009$) than their Thai counterparts.

Assessment Method

To assess the sample of portfolios, this dissertation study employed Amabile's (1982, 1996) Consensual Assessment Technique (CAT), which is one of the most highly recognized creativity measurements. Based on the notion that the consensus of experts in a given domain results in the best creativity measure, the CAT basically reflects real-world evaluations of creative works (Kaufman et al., 2007). Administration of the CAT is simple and straightforward; however, at the same time, it adheres to some requirements as Hennessey and Amabile (1988) describe:

Subjects are asked to complete some task in a specific domain (such as poetry), and then experts in that domain (such as poets) independently rate the creativity of the products. The level of interjudge agreement is assessed, and if it is acceptable (generally above .70), the mean across-judge creativity ratings are used as our dependent measures of creativity. (p. 15)

The CAT appears widely employed and well validated in creativity studies across disciplines. For example, in social psychology, Amabile (1996) and her colleagues validated the CAT in evaluations of creative artworks, such as collages, and creative writings, such as Haiku poems, created by lay children and adults. In art education, Auh and Johnston (2001) also confirmed validity of the CAT in assessing creative musical compositions and invented stories by kindergarteners. Moreover, in interior design, Meneely and Portillo (2005) employed the CAT to gauge creativity in design students' performance and compared assessed scores of the students' performance to their creative trait profile from the Adjective Check List. Although the CAT seems versatile across fields, its limitations still exist. As Amabile (1982) initially indicates, historical time

and place may restrict the reliability and validity of judgments obtained by the CAT. The technique may be unsuitable to use in evaluating highly-valued products in a specific domain. Besides, selecting an appropriate product and recruiting the right panel of judges can make this method time consuming and expensive.

Focusing on the appropriate product, the CAT validation has been limited to assessing only products under experimental conditions with specific requirements. Challenging the boundaries of this perceived limitation, Baer, Kaufman, and Gentile (2004) conducted a study to explore if they can expansively use the CAT in assessing a more diverse sample of artifacts gathered for non-specific requirements. Rated products in the study included students' stories, personal narratives, and poems previously collected for another study. The results proved that the CAT could be used in evaluating creativity in general products, not only those created for a specific study; this allows researchers to gain benefits from already-collected creative works. Based on this verification, the present research can certainly use the CAT to assess the portfolios as creative products in the context of interior design.

In addition to the product, the judge selection plays a vital part in using the CAT. "The best and most appropriate judges of creativity in a domain at any point in time are the experts in that domain at that point in time" (Kaufman et al., 2009, p. 224). However, recruiting such expert judges often poses a logistical challenge. Many studies using evaluators with expertise have had a small number of judges. For instance, Runco, McCarthy, and Svenson (1994) employed three professional artists in gauging students' art works. Kaufman, Baer, et al. (2008) recruited ten experts and 106 novices to rate creativity in poems. Additionally, Horng and Lin (2009) asked nine culinary experts to

assess creative culinary products. To increase the number of judges in a study, some researchers have replaced expert judges with non experts (e.g., Chen et al., 2002; Chen et al., 2005; Joussemek & Koestner, 1999; Niu & Sternberg, 2001). Employing novice judges may be convenient, but it seems to violate the premise of the CAT – the expert consensus. While some scholars have argued that novices' evaluations were comparable to judgments of experts (e.g., Christiaans, 2002; Dollinger & Shafran, 2005; Runco et al., 1994); others have shown differences between experts' and non experts' judgments (e.g., Casakin & Kreitler, 2008; Hekkert & van Wieringen, 1996). As Kaufman, Baer, et al. (2008) suggested, "The CAT still needs expert judges. But researchers need to be sure that the judges have the right kinds of expertise, which matches the kinds of products being assessed" (p. 176).

Regarding this suggestion, the present dissertation study employs the CAT with senior-level design practitioners as a panel of expert judges in the field of interior design. These designer judges have expertise and experience in assessing portfolios in the actual hiring process. The strengths of the CAT and the judge selection in mirroring the real-world evaluation of creative design works can assure validity of this study for measuring creativity in reality.

Instruments

Portfolio Assessment Instrument

In the portfolio evaluation procedure, the current research employed a locally-designed portfolio assessment instrument. The researcher developed the instrument to quantify scores on rated dimensions and to allow for statistical analysis. An evaluation form contained six criteria: novelty, appropriateness, technical merit, aesthetic appeal, overall creativity, and hiring potential. The researcher arranged these aspects in three

random orders and utilized a 7-point Likert scale, from 1 (*poor*) to 7 (*excellent*), as a scale to assess each portfolio based on the assessment criteria (Appendix B).

By reviewing relevant studies on the judgment of creative products in art and design disciplines, the researcher found that concepts of novelty, appropriateness, technical merit, and aesthetic appeal often appear in relation to the creative products (Figure 3-5). Examining evaluations of entry-level interior design portfolios, Levins (2006) employed Besemer and Treffinger's (1981) Creative Product Analysis Matrix (CPAM) containing 13 dimensions based on three main creative attributes: novelty – the newness of a product, resolution – the appropriate and functional values of a product, and style – the development and stylistic aspects of a product. Aspects of creativity and hiring potential were also added to fully examine the quality of portfolios. Importantly, Levins' research influenced this dissertation study in terms of the focus on assessments of creative design portfolios. However, the methodology was adapted to suit purposes of this study better. While Levins recruited U.S. designers, this study employs Thai and U.S. practitioners to explore cultural variations in their ratings. Instead of using Levins' rated dimensions, the current research utilizes fewer criteria, which appear more relevant to the field of interior design, based on the literature review and pilot study findings. Moreover, compared to Levins' quantitative-oriented study, this research more emphasizes the qualitative part to gain more comprehensive data.

Another attempt to elucidate criteria for assessing interior design works, Barnard's (1992) adapted Amabile's (1983) evaluation criteria. She recruited interior design practitioners and educators to rate interior design projects on creativity, technical skills, and aesthetic aspects. Similarly, Dorst and Cross (2001) specified creative attributes in

industrial design products by asking expert judges to evaluate a sample of industrial design works on five dimensions: ergonomics, technical aspects, aesthetics, business aspects, and creativity. Christiaans (2002) explored the reliability of design product evaluations by comparing three groups of judges: experts, novices, and non experts. Each judge assessed a sample of design works on creativity, technical quality, attractiveness, expressiveness, interest, integrating capacity, and goodness of example.

Additionally, there have been cross-cultural creativity studies focusing on the judgment of artistic products. Averill et al. (2001) investigated emotion, creativity, and the interaction between the two aspects across Eastern and Western cultures. The researchers also proposed dimensions, namely effectiveness, novelty, and authenticity, for assessing artistic creativity. Niu and Sternberg (2001) explored American and Chinese cultural influences on assessments of creative drawings. Raters assessed a sample of drawings on creativity, likeability, appropriateness, and technical quality. Chen et al. (2002) also scrutinized American and Chinese cultural impacts on evaluations of artistic creativity. The researchers asked judges to evaluate drawings on creativity, uniqueness, technical quality, and liking of artistic works.

While the above studies used different criteria for assessing creativity in art and design products, some of those criteria shared the same meaning. Novelty, authenticity, and uniqueness signified the novelty value of the creative product. Appropriateness, resolution, and effectiveness reflect the aspect of appropriateness. Technical skills and technical quality refer to the technical merit of the creative product. Aesthetic aspects, style, likeability, and liking relate to the aesthetic merit. Hence, in addition to overall

creativity, we can see that novelty, appropriateness, and technical and aesthetic merits take part as creative attributes in art and design products.

Creativity scholars always involve novelty and appropriateness in the definition of creativity; however, no one has clearly explained how these two aspects are important to creativity and how they are related to each other (Averill et al., 2001; Kaufman, Plucker, et al., 2008; Paletz, 2003; Runco & Charles, 1993). Therefore, this dissertation research employed novelty and appropriateness to gain insight into their relationships to overall creativity and to each other. Researchers also recognize technical merit and aesthetic appeal as primary characteristics of creative products, particularly in art and design areas (Amabile, 1996; Barnard, 1992; Christiaans, 2002; Niu & Sternberg, 2001). According to Amabile (1996), when using the CAT, judges should not assess only overall creativity in products; other dimensions related to creativeness should also be evaluated. As we see in the above studies, in evaluations of art or design works, technical and aesthetic merits of the work have been regularly assessed. Since design portfolios involve technical and aesthetic aspects, this study also included the two dimensions to examine their relationships to the overall creativity.

In addition to the creativity dimensions: novelty, appropriateness, technical merit, and aesthetic appeal, this study also added overall creativity and hiring potential, which represents a possibility that a student would have an interview for employment, in the assessment criteria to connect the accomplishment of a portfolio to its primary purpose. Since a designer creates an entry-level interior design portfolio for gaining professional employment, having hiring potential in the assessment criteria assists this study in examining the value that designers consider in portfolios.

Semi-Structured Interview with Judges

This study utilized a semi-structured interview to capture qualitative information. At the end of the portfolio evaluation procedure, the researcher interviewed each designer judge individually. A list of open-ended questions was designed to gain insight into the practitioners' perspective on key criteria in reviewing portfolios and creativity in interior design (Appendix C). The interview was tape recorded with permission and transcribed into a written narrative form for the coding and content analysis.

Questionnaire for Judges

After the portfolio evaluation procedure, the researcher asked practitioner judges to complete a short questionnaire on their professional experience (Appendix D). The questionnaire examined the practitioners' demographics, academic background, and experience in practicing in the architecture or interior design field as well as experience in reviewing design portfolios.

Study Procedure

The one-hour data collecting session occurred in a conference room at designer participants' respective firms. The procedure comprised three stages. First, designers watched a brief slide show of the 12 portfolios in order to get an overview of the portfolios as a group. Second, the designers viewed a full slide show and independently evaluated each portfolio using the assessment form. Finally, the practitioners elaborated on the evaluation and creativity in design according to the interview questions. Data was collected at 17 firms with 10 firms testing multiple participants. At five of the 10 firms, due to conflicts in designers' schedules, the portfolio evaluation needed to be group-administered, involving 2 to 5 practitioners at a time; however, each practitioner participated in the interview individually.

Upon initiating the study procedure, the researcher gave designers an assessment package – a pen, the informed consent statement with a copy for themselves, the evaluation instruction and 12 assessment forms, the questionnaire for judges, and a list of interview questions. Before starting the procedure, the researcher informed every practitioner of the University of Florida Institutional Review Board (IRB) rights regarding participation in a research study. The researcher verbally notified the practitioner as follows: the study did not anticipate any physical or mental risks or benefits, their identities were to keep confidential, their participation was fully voluntary, and he/she could withdraw from the study at any time without penalty. Also, the designer was asked to carefully read and sign the university approved informed consent, which was approved by the IRB of the University of Florida (Appendix E).

Portfolio Overview

A four-minute slide show offered designer judges a glimpse into the overall quality of the portfolios before they evaluated each one independently. This was necessary for the use of the Consensual Assessment Technique. To maintain consistency in judges' subjective criteria in assessing a particular dimension, Amabile (1996) suggests that judges should evaluate all tasks on one dimension prior to rating all tasks on any other aspects. However, this suggestion seemed unpractical in the present study. The participants would have had to view all the portfolios six times for assessing the six given dimensions. In such cases, judges are allowed "to familiarize themselves with the products to be rated before they actually begin the rating task" (Amabile, 1996, p. 75).

The designer judges watched the overview slide presentation on a 14"-screen lap top computer. The slide show illustrated eight images from each portfolio. Each slide was timed to play to the next slide after two seconds. As a visual separation, the

researcher inserted a black slide with a portfolio number in front of each portfolio. There were three sets of the overview slide show matching three randomized sets of the assessment slide presentation.

Portfolio Assessment

After briefly viewing the portfolios, the designers independently assessed each portfolio based on the criteria: novelty, appropriateness, technical merit, aesthetic appeal, overall creativity, and hiring potential. The researcher formatted the portfolios into a single presentation containing 184 portfolio slides. Three randomized sets of the slide show were developed to eliminate factors related to the sequential order and potential viewing fatigue that would confound the results. These sets of the slide show were randomly assigned to the designer judges; thus it was possible that designers in the same firm could view the portfolios in the same order.

The researcher set up each portfolio slide to advance to the next slide after 10 seconds to control the amount of time the participants spent on the assessment. By timing the slide show, the designers could view each portfolio only once. Most of the participants agreed that the controlled amount of time was proper to review details on each slide. A few designers complained that the slides were advanced too quickly or too slowly, and they would prefer to control the slide show by themselves. Following each portfolio, a slide instructing the designers to evaluate the previously viewed portfolio was added; this slide was timed to last fifteen seconds. It is important to note that the majority of the participants could assess each portfolio within the time constraint, while a few took longer in gauging the first two or three portfolios. However, after getting used to the dimensions, these practitioners could catch up in evaluating the other portfolios. The designer judges spent approximately 35 minutes completing the assessment.

Semi-Structured Interview

For the final phase of the study procedure, the researcher created twelve boards of 14"x17" heavy stock paper featuring eight images from each portfolio. Since during the portfolio assessment the designer participants could view each portfolio only once, they might recognize only few details in the portfolios. This hard-copy version of the portfolios acted as a ready reference for the practitioners to recall their assessment.

Once each judge completed the portfolio assessment, a semi-structured interview initiated. One of the 36 judges who finished the portfolio assessment could not attend the interview due to an urgent meeting. By gaining permission from the 35 designers, the interviews were tape-recorded to document their verbal responses. The researcher asked the practitioners to review a list of questions before starting the interview. Since the interview was semi-structured, the questions were not asked exactly in the same order. It is important to note that interviews were not fully completed. Due to a conflict in their schedules, eight designers needed to withdraw before responding to all questions. Immediately after finishing the interview, the designers filled out the questionnaire. One U.S. and two Thai practitioners asked the researcher to email them the questionnaire, and they replied their information to the researcher later.

Summary

The present dissertation study employed a mixed-methods approach, combining quantitative and qualitative methods, to gather data on the assessment, attributes, and definition of creativity in interior design across Thai and U.S. perspectives. Twenty Thai and 16 U.S. senior-level designers with valuable experience practicing and reviewing design portfolios evaluated 12 digital entry-level interior design portfolios collected from Thammasat University, Thailand. The assessment criteria comprised novelty,

appropriateness, technical merit, aesthetic appeal, overall creativity, and hiring potential. The one-hour study procedure was divided into three phases. First, designers watched a brief slide show of the portfolios. Next, the designers individually assessed each portfolio on the six criteria. Finally, the designers responded to the interview open-ended questions. At the end of the procedure, practitioners completed a questionnaire asking about their demographic information.

Table 3-1. Creativity ranking of portfolios

Creativity levels	Pilot judges (n = 6)		Thai practitioners (n = 20)		U.S. practitioners (n = 16)	
	Portfolio #	Average	Portfolio #	Average	Portfolio #	Average
High creative	2	6.50	2	5.40	2	5.44
	6	6.00	11	5.15	7	5.38
	10	6.00	7	4.95	11	5.31
	11	6.00	6	4.90	1	5.13
Medium creative	3	4.50	10	4.50	5	5.00
	7	4.50	3	4.40	6	5.00
	8	4.50	5	4.20	10	4.94
	9	4.50	8	4.00	3	4.75
Low creative	1	3.00	9	4.00	8	4.56
	12	3.00	12	3.95	12	4.44
	5	2.00	1	3.80	4	4.38
	4	1.50	4	3.55	9	4.38

Table 3-2. Participating firms

Thai firms	Participating practitioners (n=20)	U.S. firms	Participating practitioners (n=16)
DWP	1	Gensler	1
IA49	1	Jova/Daniels/Busby	1
SODA	1	Perkins+Will	1
Space Matrix	1	HOK	2
TID	2	TVSdesign	2
P49 Deesign	3	ai3	3
PIA	3	Idea Span	3
Steven J. Leach Jr.	3	SRSSA	3
Design103	5		

Table 3-3. Participant undergraduate background

Academic background	Thai practitioners (n=20)	U.S. practitioners (n=16)
Bachelor of Science or Design with Major in Interior Design	3	4
Bachelor of Industrial Design with Major in Interior Design	3	0
Bachelor of Architecture	6	6
Bachelor of Fine Arts	8	6

Table 3-4. Participant positions

Position titles	Thai practitioners (n=20)	U.S. practitioners (n=16)
Principal	1	7
Design director	15	7
Senior designer	4	0
Designer	0	2

Table 3-5. Participant design and portfolio review experience

Participants	Design experience		Review experience		Portfolio / yr	
	M	SD	M	SD	M	SD
Thai practitioners (n=20)	15.80	5.75	5.90	4.41	11.50	10.20
U.S. practitioners (n=16)	23.38	12.22	12.75	8.71	13.75	11.60
Total (n=36)	19.17	9.83	8.94	7.41	12.50	10.74

Design Experience = Number of years the practitioner had practiced design

Review Experience = Number of years the practitioner had reviewed design portfolios

Portfolio / year = Number of design portfolios the practitioner reviewed per year

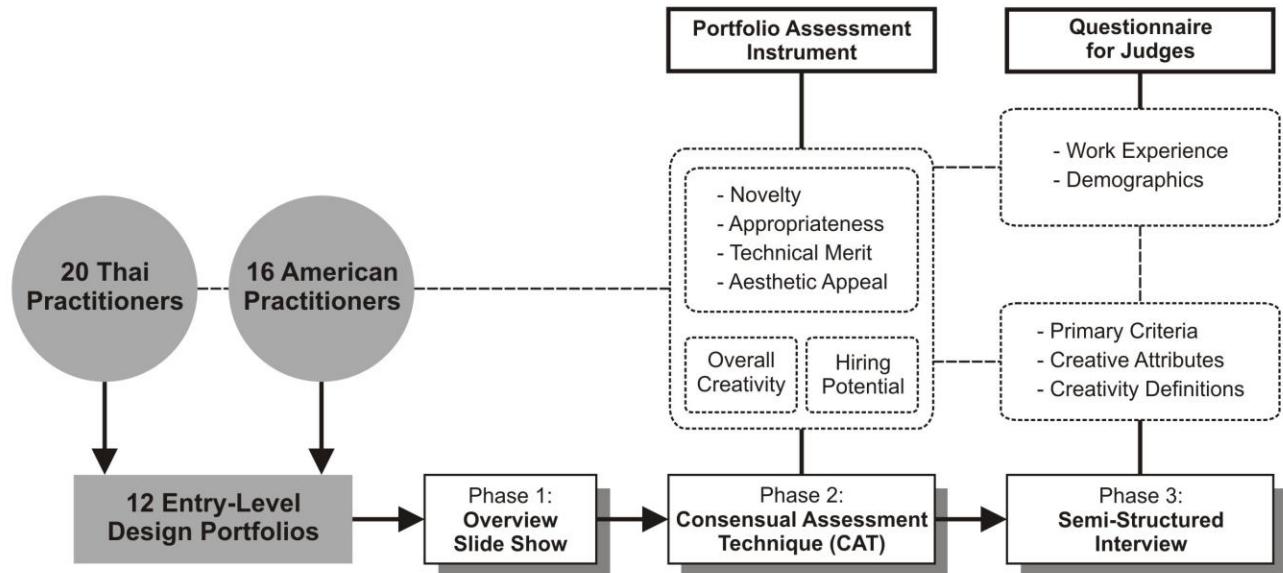


Figure 3-1. Methodology framework

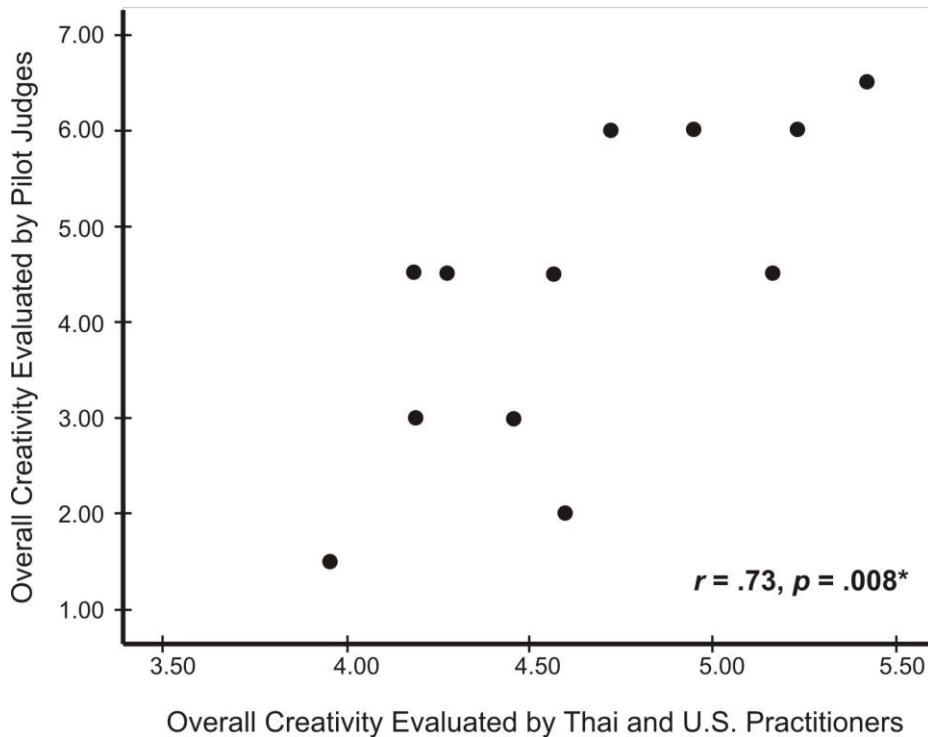


Figure 3-2. Scatterplot of overall creativity by judge

Design Sectors of Thai Firms	Corporate	Hospitality	Residential	Retail	Healthcare	Education
DWP (n = 1)	●					
Ia49 (n = 1)	●	●				
SODA (n = 1)	●	●				
Space Matrix (n = 1)	●					
TID (n = 2)	●	●	●			
P49 Deesign (n = 3)	●	●	●			
PIA (n = 3)	●	●	●			
Steven J. Leach Jr. (N = 3)	●	●	●	●		
Design103 (n = 5)	●	●	●	●	●	●

Figure 3-3. Design specialties of Thai firms

Design Sectors of U.S. Firms	Corporate	Hospitality	Residential	Retail	Healthcare	Education	Government	Mixed Use Design	Cultural	Transit	Generalist
Gensler (n = 1)	●	●		●		●	●	●		●	
Jova/Daniels/Busby (n = 1)	●				●	●			●		
Perkins+Will (n = 1)	●		●	●	●	●				●	
HOK (n = 2)	●	●	●	●	●	●	●		●	●	
TVSdesign (n = 2)	●	●	●	●	●	●	●	●	●	●	
Ai3 (n = 3)	●				●	●	●				
Idea Span (n = 3)	●				●	●	●	●			
SRSSA (n = 3)	●	●	●	●		●		●	●		●

Figure 3-4. Design specialties of U.S. firms

	# of Products	# of Judges	Creativity	Novelty	Appropriate	Technical Merit	Aesthetic Appeal	Others
Levins (2006)	12 portfolios	21 Design Practitioners	●	●	●		●	Hiring Potential
Barnard (1992)	18 Design Projects	13 Design Educators 31 Design Practitioners	●			●	●	
Dorst & Cross (2001)	9 Product Designs	5 Design Educators	●		●	●	●	Business Aspects
Christiaans (2002)	44 Product Designs	10 Design Educators 12 Design Students 12 Mathematics Students	●		●	●	●	Interest Expressiveness Integrating Capacity
Niu & Sternberg (2001)	139 Collages and Drawings (76 American and 63 Chinese Students)	9 American Psychology Graduate Students 9 Chinese Psychology Graduate Students	●		●	●	●	
Chen, Kasof, Himsel, Greenberger, Dong, & Xue (2002)	294 Drawings (50 American and 48 Chinese Students)	6 American Students 8 Chinese Students	●	●		●	●	
Averill, Chon, & Hahn (2001)	N/A (Literature Review and Proposed Framework)	N/A (Literature Review and Proposed Framework)		●	●			

Figure 3-5. Dimensions employed in relevant studies

CHAPTER 4 RESULTS

Introduction

There can be no doubt that creativity is complex and multidimensional....No single instrument or analytical procedure can capture the complex and multidimensional nature of creativity effectively and comprehensively. Systematic efforts to understand creativity require...both qualitative and quantitative data. (Treffinger, 2002, p. 60-62)

Treffinger, a leading researcher in creativity measurement, believes that it is not feasible to fully capture the intricate nature of creativity through any single method. However, traditional creativity research often emphasized quantitative, paper-and-pencil psychometric tests, as seen in Guilford's and other early studies (Albert & Runco, 1999; Baer & Kaufman, 2006). These pioneering efforts have provided foundations for the following generation of scholars to build the body of knowledge on creativity. Even so, regarding diverse facets of creativeness, we cannot understand its inherent complexity merely quantitatively, but we should also examine this construct qualitatively.

In recent years, researchers in behavior and social sciences have increasingly utilized mixed-methods research (Creswell, 2009). Since this approach allows scholars to "investigate different aspects of the same problem using elements of both qualitative and quantitative methods" (Drew et al., 2008, p. 200), it claims to give more insights into a complex problem. Studies on creativity have also employed mixed methods to answer questions beyond statistical findings. Focusing on industrial design, Dorst and Cross (2001) explored creativity in the design process. Their study involved evaluations of design concepts for a litter bin created by nine designers and observations in the design process. Using a 10-point scale, expert judges rated the concepts on overall quality, ergonomics, technical aspects, aesthetics, business aspects, and creativity. The results

revealed that overall quality was most related to ergonomics ($r = .68$), which signified appropriateness of industrial design products, while having the least relationship to creativity ($r = .32$). However, after omitting one design concept as an outlier, the correlation between overall quality and creativity considerably increased ($r = .80$). This suggested the importance of creativity in the overall quality of a design. Qualitative findings from the observation provided insight into creative attributes in relation to the design problem and to the concept of originality. In producing creative design concepts, the designers regarded the design task, the situation and the available resources, such as time, as well as their own ambitions. Interestingly, when developing their concepts, the designers highly valued original ideas. They sought ideas that differed from the existing litter bin to overcome the other designers with originality. In summary, the researchers used the quantitative results to establish the overall quality of the creative design concept and inferred the qualitative findings to explain the design process and attributes of the creative concept.

Hasirci and Demirkan (2007) explored the four aspects of creativity in design: the person, process, product, and press, with a focus on the decision making process. To collect data, the researchers employed observations, retrospective protocol analysis, which emphasized participants' reflections on their design process after completing the procedure, and rating scales. Fifteen interior architecture students designed a lounge or restaurant in a train. While solving the design problem, the students were video taped for observations of their behaviors and design process. After completing the task, the students responded to open-ended questions regarding stages of their design process, methods, techniques, and creativity definitions. The researchers and instructors rated

the students' designs on aspects of creativity, design elements, unifying principles, and spatial qualities. Despite the use of mixed methods in the data collection, the researchers analyzed the data using the quantitative approach. They coded and quantified data from the observation and protocol analysis prior to analyzing them with data from the rating scales. The researchers found that components of the process, such as the selection of design concepts, appeared mostly related to creativity, followed by characteristics of the person and product, respectively. Based on the above studies, we can see that scholars have utilized mixed methods in different ways – converging, integrating, or connecting quantitative and qualitative data. In any way, the primary purpose of the mixed methodology is to provide an insight into a complex problem by using the strengths of both quantitative and qualitative research.

The present dissertation study employed the mixed-methods strategy to examine what Thai and U.S. design practitioners considered creative in entry-level interior design portfolios. This research also sought to explore cultural variations and/or similarities in creativity assessments and definitions between the two groups of designers. To fully understand creativity across the cultures, the researcher utilized survey and interview research methods to collect data. The survey in the portfolio assessment gathered quantitative data that accounted for about three quarters of the overall data, while the remaining quarter contained qualitative data collected from the interview.

To thoroughly report the study findings, this chapter starts by summarizing the demographics and design experience of the designers who judged the portfolios. The next section presents results based on the research questions organized into three parts. First, in addressing the first three research questions, analyses of the combined

sample examine statistical relationships among overall creativity, hiring potential, and the creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal. Second, according to next series of the research questions, comparative analyses quantitatively investigate differences and/or similarities between the Thai and U.S. practitioners' assessments on the criteria. Finally, regarding the last three research questions, comparative analyses qualitatively explore cultural variations and/or similarities in creativity attributes and definitions.

Demographics and Design Experience of Participating Practitioners

The data collecting procedure concluded with a questionnaire on a designer's gender, academic background, job position, specialization of design work, design experience, number of years reviewing portfolios, and number of portfolios reviewed per year. The sample of participants comprised 20 Thai and 16 U.S. experienced designers from nine firms in Bangkok and eight firms in Atlanta, respectively. All participating firms were well-recognized and had received national and/or international awards in the architecture and design areas.

All of the nine Thai firms had design specializations (Figure 3-3). Thai designer participants reported their firms' specialties ranged from 1 to 6 types of design work, and the average of their specialties was 3.78 types. Seven out of eight U.S. participating firms had design specializations; only one firm did not identify a specific specialization (Figure 3-4). U.S. designer participants listed their firms' specialties ranging from 4 to 10 types of design work, and the average of their specialties was 6.29 types. We should note that there is a difference in design sectors between firms in the two countries. U.S. design firms typically have a more variety of design sectors than Thai firms that mostly practice four sectors: corporate, hospitality, residential, and retail. The corporate section

usually includes healthcare, education, government, and other projects that are less common in the Thai developing market.

Focusing on design expertise of the participant sample, Figure 4-1 presents that Thai and U.S. designer participants engaged in corporate, hospitality, residential, retail, healthcare, education, government, mixed use design, and generalist design. Thai practitioners had 1 to 4 specializations with the majority citing one or two specialties. Seventy-five percent of the Thai sample ($n = 15$) practiced corporate design, followed by 60% of the sample ($n = 12$) having a hospitality specialty; whereas only 5% ($n = 1$) were involved in healthcare. Thirty percent of the Thai sample ($n = 6$) identified a residential specialty. U.S. designers had expertise in 1 to 4 types of design work, but the majority reported only one specialty. Seventy-five percent of the U.S. sample ($n = 12$) worked in the corporate sector, while 6.25% of the sample ($n = 1$) engaged in retail, healthcare, government, or mixed use design. None of the U.S. sample practiced residential design.

In the Thai sample, 40% of the participants ($n = 8$) were female, and the other 60% ($n = 12$) were male. In the U.S. sample, 37.5% of the participants ($n = 6$) were women, and the other 62.5% ($n = 10$) were men. The sample represents nearly a 2:3 ratio of women to men. According to the four categories of job positions: Principal, Design Director, Senior Designer, and Designer (Coleman, 2002), the distribution of job positions indicates that 75% of the Thai designers were Design Directors ($n = 15$), and 88% of the U.S. participants were Principals ($n = 7$) or Design Directors ($n = 7$).

Based on the position categories, the researcher analyzed data on the designers' employment variables: practice experience, portfolio review experience, and number of portfolios reviewed each year. As Table 4-1 illustrates, the employment variables of the

Thai sample did not correspond with the job positions. The only Principal who had the most experience in reviewing portfolios (10 years) and the greatest number of portfolios reviewed a year (15 portfolios) had slightly lower professional experience (15 years) than the 15 Design Directors (16.60 years). The Design Directors, as a whole, reviewed fewer portfolios per year (10.27 portfolios) than the two Senior Designers (15.25 portfolios), who had less average experience in practicing (13 years) and assessing portfolios (2.25 years). In contrast to the Thai sample, Table 4-2 shows the employment variables of the U.S. sample which correlated to the job positions. The seven Principals had the highest average design experience (30.29 years), portfolio review experience (16.71 years), and number of reviewed portfolios per year (20 portfolios). The seven Design Directors had the second highest average experience in practicing (21.43 years) and reviewing portfolios (11.29 years), and number of portfolios assessed a year (9.79 portfolios). The two Designers had less average practice experience (6 years), portfolio review experience (4 years), and number of portfolios reviewed a year (5.75 portfolios).

Data Analysis

The present study explored discipline-specific creativity across cultures through Thai and U.S. practitioners' assessments of portfolios. Ratings of the six criteria on the portfolio assessment instrument, with no missing responses, resulted in a total of 432 data points. With assistance of two statistical consultants, the researcher used the Statistical Package for the Social Sciences program (SPSS version 16.0) for analyzing. Table 4-3 shows the means and standard deviations of the assessment criteria. The mean scores of the aspects on a 7-point scale ranged from 4.17 to 5.09, which implied that the designer groups recognized a good overall quality of the portfolios.

Prior to analyzing any data collected by using the Consensual Assessment Technique, an inter-judge reliability assessment is necessary to verify if the subjective judgments obtained are reliable. To indicate the inter-rater reliability, Amabile (1996) recommends using the Cronbach's coefficient alpha – the most common measure which indicates the reliability of a variable in producing consistent responses (Field, 2005). A high alpha value signifies a high level of consensus among evaluators; an acceptable value should exceed .70.

Table 4-4 shows that 16 out of 18 reliabilities among Thai, U.S., and combined designers appeared acceptably high. Only the coefficients of appropriateness (.66) and aesthetic appeal (.67) rated by U.S. practitioners were slightly less than the acceptable level. This was not unexpected. Previous studies on judgments of creative products found these two attributes showing greater variation than other criteria (e.g., Casakin & Kreitler, 2008; Runco & Charles, 1993). Additionally, studies in social sciences tend to accept slightly low reliabilities because they seek experimental findings rather than rigidly accurate results. Hence, as being an exploratory study in nature, the current research used the data points of all six criteria in further analyses.

Quantitative Analysis of Total Sample of Practitioners

Question 1: Do experienced design practitioners perceive overall creativity in entry-level interior design portfolios as predicting hiring potential?

The first research question sought to examine whether overall creativity expressed in portfolios related to perceived hiring potential. Based on the review of creativity studies in design fields, this research assumed that an association existed between overall creativity and hiring potential. To test the relationship, the researcher employed a correlation analysis – a measure of the linear correlation between two variables. As an

outcome of the correlation analysis, Pearson's r coefficient indicates the strength and direction of the association. The closer the coefficient is to 1.0, the stronger the correlation between two variables (Field, 2005).

For this research question, a correlation coefficient determines the association between ratings on overall creativity and hiring potential. The analysis found a positive and significant correlation between the two variables ($r = .84$, $p = .000$). Importantly, Field (2005) claims that we cannot use a significant relationship to conclude that one variable causes the other one to change; however, we can analyze the correlation coefficient further by squaring it to understand the variance between two variables. In this case, the coefficient squared (r^2) between overall creativity and hiring potential was .71, which suggested that overall creativity accounted for 71% of the variability in hiring potential. In addressing the first question, the results indicated that designers closely associated overall creativity in design portfolios as a strong predictor of hiring potential.

Question 2: What is the relative importance of the creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal, in predicting overall creativity in portfolios?

The second question examined the four creative dimensions in relation to overall creativity of design portfolios. The researcher primarily employed correlation analyses to determine relationships between these dimensions and overall creativity. If the correlations appeared significant, they would be further examined using a regression analysis to explain the relative importance of novelty, appropriateness, technical merit, and aesthetic appeal to overall creativity.

Table 4-5 presents correlation coefficients of the creative dimensions, showing positive and significant relationships to overall creativity. Novelty had the strongest association with overall creativity ($r = .85$). While being lower than the other criteria,

technical merit also showed a significant correlation to overall creativity ($r = .71$). Then, the r values were squared to examine the variance between each dimension and overall creativity. With the strongest correlation, novelty accounted for 72% of the variability in overall creativity, followed by appropriateness explaining 67% of the variation in overall creativity. Aesthetic appeal and technical merit could explain 58% and 50% of the variance in overall creativity, respectively.

In the regression analysis, the contribution of each creative attribute was indicated as the influence of all the other attributes was held constant. Table 4-6 demonstrates the influence of novelty, appropriateness, technical merit, and aesthetic appeal on overall creativity. The purpose of this table is to illustrate the variance of overall creativity and to indicate which variables had the strongest contribution. Also, the regression analysis specified the R^2 value, which is the coefficient squared for multiple regression, of .79. This suggested that the set of the four variables could account for 79% of the variation in overall creativity. Furthermore, all of the creative dimensions appeared significant with a t -value greater than 1.96 ($p < .05$).

Moreover, the standardized coefficient or beta value for each significant variable was examined to further assess its individual influence. Beta values represent the linear degree of contributions by the predictor variables and also show how many standard deviation units of the outcome variable will be affected by an increase of one standard deviation unit in the predictor variable. In this case, novelty had the highest beta value (.43), followed by appropriateness (.29) and aesthetic appeal (.15). Technical merit had the lowest beta value (.10). These values indicated that novelty had four times more impact on overall creativity than technical merit. As the values of novelty and technical

merit increased by one standard deviation, the value of overall creativity increased by .43 and .10 standard deviations, respectively.

In addition, using stepwise analysis, the regression equation is recalculated by adding one predictor variable at a time in order to indicate whether any redundant predictors may be removed (Field, 2005). As Table 4-7 illustrates, novelty was the first variable added into the equation because it had the strongest relationship to overall creativity. Appropriateness was added second, followed by aesthetic appeal and technical merit. By looking at the R^2 values, novelty could explain 72% of the variability in overall creativity. When appropriateness was included, the two variables accounted for 77% of the variance in overall creativity. However, when adding either aesthetic appeal or technical merit into the equation, the R^2 value increased only slightly. These results implied that novelty and appropriateness appeared most important in explaining the variability in overall creativity, while aesthetic appeal and technical merit had less but still important impact on overall creativity.

Answering the second question, the results showed that all of the four creative dimensions appeared significantly correlated to and influenced overall creativity. Novelty had the strongest correlation to and the most influence on overall creativity, whereas technical merit had the weakest but still strong relationship to and the least impact on overall creativity. Additionally, the findings from stepwise methods suggested that only novelty and appropriateness could effectively explain the variation in overall creativity.

Question 3: What is the relative importance of the creative dimensions in predicting practitioners' evaluations of portfolios in terms of perceived hiring potential?

This research question examined the creative dimensions in design portfolios with regard to perceived hiring potential. Based on correlation analyses, Table 4-8 presents

coefficients of novelty, appropriateness, technical merit, and aesthetic appeal. The relationships of the dimensions appeared positive and significantly associate with hiring potential, but showed different strengths. The strongest relationship emerged between hiring potential and novelty ($r = .84$), followed by appropriateness ($r = .81$) and aesthetic appeal ($r = .78$). Technical merit had the weakest but still strong correlation to hiring potential ($r = .72$). The r^2 values indicated that novelty accounted for 71% of the variability in hiring potential. Appropriateness and aesthetic appeal could explain 66% and 61% of the variation in hiring potential, respectively. And, technical merit accounted for 52% of the variability in hiring potential.

The researcher further examined the relationships using multiple regression to explain the relative influence of novelty, appropriateness, technical merit, and aesthetic appeal on hiring potential. Table 4-9 shows the contribution of the creative attributes to hiring potential. The R^2 value of .79 specified that this set of the variables could explain 79% of the variance in hiring potential. All of the four dimensions presented significant values with t-values greater than 1.96 ($p < .05$). The beta values explained that novelty (.40) had 1.5 times more influence on hiring potential than appropriateness (.26), with aesthetic appeal (.22) closely following. Technical merit (.10) had the least impact on hiring potential. As the values of novelty and technical merit increased by one standard deviation unit, the value of hiring potential increased by .40 and .10 standard deviations, respectively.

Table 4-10 illustrates the R^2 values calculated with stepwise methods. Due to its strongest relationship to hiring potential, novelty was the first variable added in the regression equation. Appropriateness was added second, followed by aesthetic appeal

and technical merit. By focusing on the R^2 values, novelty could explain 71% of the variation in hiring potential. In adding appropriateness, the two variables accounted for 76% of the variability in hiring potential. However, when aesthetic appeal and technical merit were inserted into the equation, there was only slight improvement of the R^2 values. This implied that novelty and appropriateness could effectively explain the variance in hiring potential with minor influence of aesthetic appeal and technical merit.

To address the third question, the findings confirmed that the creative dimensions were significantly associated with and had significant influence on hiring potential. Novelty had the strongest association with and the highest impact on hiring potential, whereas technical merit had the weakest but still strong correlation to and the least impact on hiring potential. Additionally, only novelty and appropriateness seemed sufficient to explain the variability in hiring potential.

The overall analysis of the results in this section provided an insight into the interactions among overall creativity, hiring potential, and the creative dimensions. As Figure 4-2 illustrates, overall creativity had a statistically significant relationship to hiring potential; moreover, the creative attributes significantly influenced both overall creativity and hiring potential. In the figure, the r^2 values between overall creativity and hiring potential indicates a chance in which creativity accounted for the variance in hiring potential. Beta values present the degree of influence between the creative dimensions and overall creativity as well as between the dimensions to hiring potential.

Quantitative Comparative Analysis between Thai and U.S. Practitioners

Question 4: How do Thai and U.S. practitioners perceive the overall level of creativity in portfolios and hiring potential?

The fourth question sought to examine how Thai and U.S. designers perceived creativity in design portfolios and potential to hire students who created the portfolios. To address this question, the researcher examined average scores of the 12 portfolios and inter-judge reliabilities of overall creativity and hiring potential. Then, the researcher used correlation analyses to test relationships between evaluations of the groups and utilized Independent-Samples *t* tests to determine variations in the assessments.

Table 4-11 presents rankings of the portfolios with their means and standard deviations of ratings on overall creativity and hiring potential. Focusing on overall creativity, the portfolios received average scores ranging from 3.55 to 5.44, indicating medium- to relatively high-levels of creativity. Both groups of designers agreed that portfolios 02, 07, and 11 were the most creative, whereas portfolios 04, 09, and 12 were the least creative in this sample (Appendix F). Both groups similarly perceived levels of creativity in this set of portfolios, except portfolio 01, which U.S. practitioners viewed it as more creative than Thai designers did. As Table 4-4 presents, the inter-rater reliability of .84 confirmed that Thai and U.S. designers had high consensus in their perceptions of overall creativity in portfolios. In looking at hiring potential, the portfolios showed means ranging from 3.30 to 5.31 and were ranked correspondingly to the ranking of their creativity levels, with portfolios 02, 07, and 11 on top of the list and portfolios 04 and 09 at the bottom. Again, portfolio 01 was the only portfolio which U.S. designers rated it much higher than Thai practitioners. In general, the coefficient of .88 suggested that Thai and U.S. designers agreed on their perceived hiring potential.

Further, the researcher analyzed the relationships between the two groups' ratings using simple scatterplots and correlation analyses. Using the scatterplot, showing each portfolio's average score rated by Thai designers against its average score rated by U.S. designers, allowed us to explore the general trend of the data. Figures 4-3 and 4-4 present a positive relationship between evaluations of the groups on overall creativity and hiring potential, respectively. A correlation analysis confirmed a significant relationship between the groups' assessments on overall creativity ($r = .80, p = .000$). By squaring the r value, the result implied that Thai practitioners' evaluations on overall creativity accounted for 64% of the variability in U.S. practitioners' evaluations. The analysis also indicated a significant relationship between the groups' judgments on hiring potential ($r = .74, p = .006$). The r^2 value suggested that Thai designers' ratings on hiring potential could explain 55% of the variance in U.S. designers' ratings.

In addition, an Independent-Samples t test measured differences between Thai and U.S. designers' judgments on overall creativity. The result disclosed that although they seemed to share the same perception of overall creativity in the portfolios, Thai practitioners gave a significantly lower overall score on creativity to the sample of portfolios than their U.S. counterparts did ($t = 3.73, p = .000$). Similarly, the findings from the t test on evaluations of hiring potential also indicated that Thai designers assigned a significantly lower average rating of hiring potential than U.S. practitioners ($t = 4.25, p = .000$). Answering the fourth question, the findings confirmed that designers from the cultures under study similarly perceived the overall level of creativity in the portfolios and hiring potential. However, Thai practitioners assigned lower average scores to the portfolios than their U.S. counterparts did.

Question 5: How do Thai and U.S. practitioners evaluate the creative dimensions in portfolios?

This research question explored whether Thai and U.S. designers assessed the creative dimensions differently. The researcher started by gauging inter-rater reliabilities of novelty, appropriateness, technical merit, and aesthetic appeal, and then tested correlation analyses on the practitioners' assessments. The researcher also used Independent-Samples *t* tests to determine variations in ratings on the criteria assessed by the practitioner groups.

Table 4-4 indicates that the inter-judge reliabilities of the creative dimensions all appeared acceptable. This suggested that designers from the two cultures agreed on their assessments of the portfolios. Independent-Samples *t* tests further compared the means of the two groups' ratings on the creative dimensions. Table 4-12 shows the means and standard deviations of each criterion by culture. The *t* tests exposed that, compared to U.S. designers, Thai professionals gave significantly lower average scores to the portfolios on all criteria: novelty ($t = 4.88, p = .000$), appropriateness ($t = 5.33, p = .000$), technical merit ($t = 5.81, p = .000$), and aesthetic appeal ($t = 2.38, p = .018$). Addressing the fifth research question, we found that Thai and U.S. designers showed high consensus in their assessments on the creative dimensions. However, the *t* tests disclosed that, in general, Thai practitioners rated the creative dimensions significantly lower than their U.S. counterparts.

Question 6: How do Thai and U.S. practitioners perceive overall creativity in portfolios as predicting hiring potential?

The sixth question explored whether Thai and U.S. designers perceived creativity expressed in design portfolios as an indicator of potential to hire their creators. To answer this question, the researcher separately analyzed Thai and U.S. practitioners'

assessments on overall creativity and hiring potential using correlation analyses.

Afterward, the researcher compared results from the correlation analyses to investigate the differences and/or similarities between the two groups.

Starting with Thai practitioners' evaluations, a correlation analysis indicated a significantly high interaction between creativity and hiring potential ($r = .83, p = .000$). The r^2 value of .69 suggested that overall creativity could explain 69% of the variation in hiring potential perceived by Thai designers. Next, for U.S. practitioners' evaluations, a correlation analysis also revealed a positive and significantly high relationship between creativity and hiring potential ($r = .85, p = .000$). The r^2 value showed that creativity accounted for 72% of the variability in hiring potential perceived by U.S. designers.

The results from the correlation analyses revealed highly significant associations between creativity and hiring potential perceived by both groups of designers. This corresponded with the result from the first question showing that, regardless their cultural background, practitioners recognized creativity as a predictor of hiring potential. In this question, the findings also confirmed that both Thai and U.S. designers perceived overall creativity in portfolios as predicting hiring potential.

Question 7: How do Thai and U.S. practitioners perceive the creative dimensions in portfolios as predicting hiring potential?

This question complemented research question six by exploring whether the four creative dimensions impacted hiring potential perceived by the Thai and U.S. designers differently. Similar to the previous question, the researcher analyzed assessments of the two groups separately using correlation analyses and then multiple regression to gauge the influence of the dimensions on hiring potential. Moreover, the researcher compared findings from the two cultural groups to indicate cultural variations.

Beginning with Thai practitioners' assessments, correlation analyses revealed positive and significant relationships between the four creative dimensions and hiring potential. Novelty correlated most strongly with hiring potential ($r = .83, p = .000$). Appropriateness appeared almost identical as novelty ($r = .82, p = .000$), with aesthetic appeal closely following ($r = .81, p = .000$) and technical merit at the least ($r = .75, p = .000$). The researcher further examined the relationships using multiple regression. Table 4-13 illustrates the influence of the creative attributes on hiring potential. The R^2 value of .78 suggested that the set of the four dimensions accounted for 78% of the variability in hiring potential perceived by Thai designers. Novelty, appropriateness, and aesthetic appeal significantly influenced hiring potential, whereas only technical merit did not. The beta values also indicated that novelty (.35) had as much influence as appropriateness (.33) on hiring potential, followed by aesthetic appeal (.23).

For U.S. practitioners' evaluations, correlation analyses showed that all of the four creative aspects had a positive and significant relationship to hiring potential. The strongest relationship appeared between novelty and hiring potential ($r = .85, p = .000$), followed by appropriateness ($r = .79, p = .000$) and aesthetic appeal ($r = .74, p = .000$). Technical merit had the weakest but still strong correlation with hiring potential ($r = .64, p = .000$). Based on multiple regression, Table 4-14 shows the contribution of the four creative attributes to hiring potential. The R^2 value of .80 indicated that this set of the variables could explain 80% of the variance in hiring potential perceived by U.S. practitioners. Moreover, all of the four dimensions significantly influenced hiring potential. The beta values explained that novelty (.46) had the highest and twice as much influence on hiring potential as aesthetic appeal (.22), with appropriateness (.21)

closely following and technical merit (.10) at the least. Interestingly, appropriateness, with the second highest relationship to hiring potential, had slightly less impact than aesthetic appeal.

The findings from the two groups showed similarities and differences across the cultures. In both Thai and U.S. designers' assessments, the four creative dimensions appeared significantly correlated to hiring potential. The strengths of the relationships were also in the same order: novelty, appropriateness, aesthetic appeal, and technical merit, respectively. Some differences emerged between the groups in the regression analyses. Thai designers' evaluations revealed that novelty, appropriateness, and aesthetic appeal significantly influenced hiring potential, not technical merit. Also, novelty and appropriateness had almost identical contribution to hiring potential. On the other hand, U.S. designers' judgments showed that all of the four creative attributes significantly influenced hiring potential, with novelty having the noticeably larger influence than the other three dimensions.

Figure 4-5 summarizes the comparative findings from the research questions on the relationship between overall creativity and hiring potential and on the contribution of the creative dimensions to hiring potential. The results showed that Thai and U.S. designers perceived in the same way that overall creativity in portfolios could predict hiring potential. Nevertheless, the two groups considered the creative dimensions as indicators of hiring potential differently. Although both of their assessments indicated significant correlations between the four attributes and hiring potential, technical merit did not significantly impact hiring potential perceived by Thai designers. Further, while

Thai designers valued novelty and appropriateness almost equally in predicting hiring potential, U.S. practitioners seemed to place a greater emphasis on novelty.

Qualitative Comparative Analysis between Thai and U.S. Practitioners

To supplement the statistical results, the researcher posed the following open-ended questions in order to seek more insights into Thai and U.S. designers' views on creativity, especially related to portfolio reviews. Nineteen of the 20 Thai designers attended the interview session. One could not participate in the interview due to an urgent meeting. All of the 16 U.S. practitioners took part in the interview.

The collected data showed that the amount of time that Thai designers took in the interview ranged from 8 to 25 minutes, while U.S. practitioners spent from 8 to 30 minutes. On average, U.S. practitioners ($M = 17.56$, $SD = 6.50$) spent a few minutes longer in the interview than did Thai designers ($M = 14.74$, $SD = 4.33$) and seemed to provide more detailed information than did their Thai counterparts. The average length of transcripts from the U.S. sample was about nine pages, whereas the average from the Thai sample was nearly seven pages. The researcher analyzed the designers' responses by transcribing, interpreting, coding, and classifying into main themes. Answers from the Thai designers were initially transcribed in Thai and then translated to English. All transcripts were carefully reviewed by the researcher and a Thai-U.S. graduate student who is fluent in both languages.

Question 8: How do Thai and U.S. practitioners describe their primary criteria for assessing portfolios?

The eighth research question compared the portfolio assessment criteria cited by Thai and U.S. designers. In the interview, the practitioners identified important criteria they considered when reviewing portfolios. The researcher coded and organized their

answers into groups in relation to overall creativity, the creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal, and other irrelevant factors.

Figure 4-6 shows the frequency of assessment criteria employed by culture. In general, designers from both cultures hold very similar views on the characteristics defining creativity and its specific attributes. The practitioners identified creativity as “the overall quality of a design,” “the design process,” or “someone’s creative thinking.” They recognized novelty as “being unique and innovative,” while discussing appropriateness as “an understanding of a design problem and then thoughtfully coming back with a solution.” The designers also considered technical merit as “being able to draw, create 3D models, and understand the set of drawings.” Finally, the aesthetic aspect in a portfolio included “the overall graphic representation, compositionally pleasing, and the use of colors and materials.”

In looking at the results from the Thai sample, based on a total of 55 responses, 75% referred to creativity and its attributes, and the other 25% included other aspects, such as clarity, articulation, and composition of a portfolio. Excluding these factors, when assessing portfolios, Thai practitioners recognized creativity (23.64%) as much as aesthetic appeal (21.82%), followed by appropriateness (16.36%), technical merit (9.09%), and novelty (3.64%). For the results from the U.S. sample, based on a total of 46 answers, 72% related to creativity and the creative dimensions, while the other 28% spoke to other factors. Focusing on creativity and its attributes, U.S. designers looked for creativity first (28.26%), technical merit second (15.22%), followed by appropriateness (13.04%), aesthetic appeal (10.87%), and novelty (4.35%).

The qualitative findings from the two cultural groups clearly showed the variations and similarities in their assessment criteria. When assessing portfolios, Thai designers considered both creativity and aesthetic appeal almost equally, but U.S. practitioners viewed creativity as the foremost aspect. Both groups regarded novelty less than the other creative criteria. In reviewing the statistical results from Thai and U.S. designers' evaluations, the creative dimensions accounted for approximately 80% of the variance in hiring potential. The results from this question might begin to explain the other 20% in the assessments with additional considerations. Interestingly, although the statistical results confirmed the high influence of novelty on hiring potential, designers from both groups discussed novelty as less important than the other creative dimensions.

Question 9: How do Thai and U.S. practitioners view creativity in portfolios with respect to hiring potential?

This research question examined the influence of creativity in portfolios on hiring potential perceived by Thai and U.S. designers. An interview question asked designers to describe criteria they considered in the hiring process. The researcher classified responses into groups: creativity, technical skills, aesthetic sense, communication skills, work capability, and personal characteristics. Both groups of designers referred to creativity, technical skills, and aesthetic sense as aspects of a portfolio. A design portfolio should present “the creative idea,” “technical proficiency,” and “good taste” of the person. The communication skills represented “how well the person articulated his/her design in the portfolio as well as presented it verbally.” The work capability included the person’s “ability to work in a real setting,” “ability to continue to grow,” and “potential to fit in the firm.” Designers assessed the personal characteristics by examining “how the person carried his/herself while being interviewed.”

In discussing considerations in making hiring decisions, 68.42% of the Thai designers ($n = 13$) viewed that a creative portfolio definitely increased a chance for the applicant to be called for an interview and to be hired. All of the 16 U.S. practitioners unanimously agreed on the decisive role of a creative portfolio in the hiring process. However, practitioners from both cultures noted that assessing only the portfolio was not sufficient for making a hiring decision; they needed to evaluate the person as well. In line with this note, Figure 4-7 presents that, based on the total of 62 responses from Thai designers, 24.19% emphasized the portfolio aspects: creativity, technical skills and aesthetic sense, while 43.55% highlighted the personal characteristics. Moreover, Thai designers discussed the work capability and communication skills 17.74% and 14.52% of the time, respectively. Similarly, based on the total of 79 responses from U.S. practitioners, 31.65% cited the portfolio aspects, and 40.51% discussed the personal characteristics. U.S. practitioners also mentioned the work capability 18.99% of the time, and only 8.86% of their responses included communication skills.

Since the majority of the answers from both groups stressed the personal characteristics, the researcher further analyzed these responses. Overall, 32 out of the 35 designers participating in the interview (91.43%) reported personality factors as their considerations when hiring a designer. (Two Thai and one U.S. practitioners did not refer to the personal characteristics as their criteria.) Each professional supplied specific personality aspects, ranging from one to four traits. Sixteen out of the 32 designers (50%) considered overall personality of a candidate in making their hiring decision. Eight designers (25%) specified attitude, and seven (21.88%) discussed motivation. Further, five professionals (15.63%) recognized commitment, and four (12.50%) spoke

to practicality, confidence, or professionalism. While three designers (9.38%) thought an applicant should be well-rounded, two (6.25%) looked for good appearance. Figure 4-8 illustrates the relative weighting of the personal characteristics identified by culture. Almost 71% of the Thai designers ($n = 12$) discussed a candidate's overall personality or attitude. Similarly, nearly 67% of the U.S. professionals ($n = 10$) focused on overall personality of an applicant in the hiring process.

The comparison of the findings from the two groups suggested that Thai and U.S. practitioners generally considered creativity in a portfolio important in the hiring process. Nonetheless, to finalize their decision, they needed to evaluate the person as well. The person's work capability appeared as critical as creativity in the portfolio. Besides, Thai designers placed an emphasis on the communication skills more than U.S. designers. With the person in the hiring process, designers from both cultures mostly considered his/her personal characteristics, especially overall personality and attitude.

Question 10: How do Thai and U.S. practitioners define design creativity in their own terms?

The final question explored Thai and U.S. designers' perceptions of creativity in design. The researcher asked practitioners from the two cultures to supply their own personal definition of creativity and organized their responses in relation to the aspects of novelty, appropriateness, technical merit, aesthetic appeal, and other considerations, such as exploration, organization, and design recognition.

Figure 4-9 shows that 84% of the Thai designers' responses referenced novelty, appropriateness, technical merit, and aesthetic appeal, while the other 16% referred to other aspects. The majority of the responses (40.54%) recognized creativity as novelty; "A creative design has to challenge the norm and the ordinary standards" (TH-13).

Slightly less than novelty, 37.84% of the supplied definitions cited appropriateness; Judge TH-03 elaborated that “a creative solution should be flexible and serve the function. ... You cannot crumble a piece of paper and say that it is creative. It is necessary to serve something as an outcome.” Only 5.40% of the definitions involved aesthetic aspects. Interestingly, technical merit was not included in the definitions at all.

Figure 4-10 shows that 74% of the U.S. designers’ responses related to novelty, appropriateness, technical merit, and aesthetic appeal, while the other 26% included other aspects. The majority of the definitions (34.21%) described creativity in terms of novelty. “I think creativity in design is really, really based on solving your client’s problem in a unique way” (US-05). Following novelty, 26.32% of the responses referenced appropriateness. Judge US-09 emphasized that “in the world of design and architecture, [a creative idea] has to create, elicit, an emotion, negative or positive, while still being fully functional.” Additionally, 7.90% and 5.26% of the definitions involved technical merit and aesthetic appeal, respectively.

The qualitative findings revealed that designers from both cultures defined creativity in design with respect to novelty and appropriateness rather than aesthetic appeal or technical merit. The results of the definitions also supported the quantitative findings. Creativity appeared significantly associated with hiring potential in evaluations of the two groups. All of the creative attributes significantly influenced hiring potential perceived by U.S. designers. Likewise, U.S. practitioners included all creative aspects when defining creativity. For Thai designers, technical merit neither significantly impacted their perceived hiring potential nor appeared in their definitions of creativity.

Summary

This dissertation study employed mixed-methods design in the data collection and analysis. In this chapter, the researcher reported the findings based on the research questions, which were organized into three sections. First, the quantitative analysis of the combined sample indicated statistically significant relationships among overall creativity, hiring potential, and the creative attributes: novelty, appropriateness, technical merit, and aesthetic appeal. These attributes also significantly influenced both overall creativity and hiring potential.

Second, the quantitative comparative analysis showed that, in general, Thai and U.S. practitioners similarly perceived the overall level of creativity in portfolios and hiring potential. Moreover, their evaluations on overall creativity could be a strong predictor of their ratings on hiring potential. Although inter-rater reliabilities of all assessment criteria suggested high consensus between the two groups, Independent-Samples *t* tests exposed that Thai designers generally evaluated the sample of portfolios significantly lower than their U.S. counterparts on every dimension. Further, multiple regression showed that, in U.S. practitioners' assessments, all of the creative aspects significantly influenced hiring potential. However, for Thai designers, novelty, appropriateness, aesthetic appeal, but technical merit had significant impact on hiring potential.

Finally, the qualitative comparative analysis supplemented the statistical results with insights into creativity assessment criteria and perceptions of designers from the cultures under study. Supporting the results on the impact of overall creativity and its attributes on hiring potential, the majority of assessment criteria reported by both groups cited overall creativity, novelty, appropriateness, technical merit, and aesthetic appeal, while the other criteria involved discipline-relevant considerations. Both groups of

designers mostly emphasized overall creativity in portfolios, followed by aesthetic appeal for the Thai sample and technical merit for the U.S. sample. In the actual hiring process, in addition to the portfolio, both groups of designers stressed the importance of assessing the person to determine his/her work capability, communication skills, and personal characteristics. When defining their own definition of creativity, practitioners from both cultures cited novelty and appropriateness most. Additionally, U.S. designers discussed technical and aesthetic merits in their conceptions of creativity, whereas Thai professionals included only aesthetic merit. This finding implied that technical merit had the least influence, compared to the other creative dimensions, on Thai designers' assessments and perceptions of creativity.

Table 4-1. Position title by employment variables of Thai practitioners

Position group	n	%	Design experience (n=20)					Review experience (n=20)					Portfolio / yr (n=20)			
			M	SD	Min.	Max.	M	SD	Min.	Max.	M	SD	Min.	Max.		
Principal	1	5	15.00	0.00	15.00	15.00	10.00	0.00	10.00	10.00	15.00	0.00	15.00	15.00		
Design director	15	75	16.60	5.96	8.00	26.00	6.60	4.55	2.00	17.00	10.27	6.93	3.00	25.00		
Senior designer	4	20	13.00	5.42	5.00	17.00	2.25	0.96	1.00	3.00	15.25	20.11	3.00	45.00		
Designer	0	0	-	-	-	-	-	-	-	-	-	-	-	-		

Design experience = Number of years the practitioner had practiced design

Review experience = Number of years the practitioner had reviewed design portfolios

Portfolio / year = Number of design portfolios the practitioner reviewed per year

Table 4-2. Position title by employment variables of U.S. practitioners

Position group	n	%	Design experience (n=16)					Review experience (n=16)					Portfolio / yr (n=16)			
			M	SD	Min.	Max.	M	SD	Min.	Max.	M	SD	Min.	Max.		
Principal	7	44	30.29	9.27	15.00	40.00	16.71	9.52	5.00	30.00	20.00	12.65	1.50	35.00		
Design director	7	44	21.43	11.21	7.00	35.00	11.29	7.25	3.00	20.00	9.79	9.51	3.50	30.00		
Senior designer	0	0	-	-	-	-	-	-	-	-	-	-	-	-		
Designer	2	12	6.00	2.83	4.00	8.00	4.00	0.00	4.00	4.00	5.75	2.47	4.00	7.50		

Design experience = Number of years the practitioner had practiced design

Review experience = Number of years the practitioner had reviewed design portfolios

Portfolio / year = Number of design portfolios the practitioner reviewed per year

Table 4-3. Descriptive statistics of assessment criteria

Dimensions	Thai practitioners (n=20)		U.S. practitioners (n=16)		Total sample (n=36)	
	M	SD	M	SD	M	SD
Novelty	4.22	1.29	4.84	1.38	4.50	1.36
Appropriateness	4.23	1.15	4.84	1.23	4.50	1.22
Technical merit	4.43	1.25	5.09	1.11	4.72	1.23
Aesthetic appeal	4.36	1.28	4.67	1.43	4.50	1.35
Overall creativity	4.40	1.30	4.89	1.43	4.62	1.38
Hiring potential	4.17	1.52	4.79	1.49	4.45	1.54

Table 4-4. Inter-judge reliabilities of assessment criteria

Dimensions	Thai practitioners (n=20)	U.S. practitioners (n=16)	Total sample (n=36)
Novelty	.871	.772	.846
Appropriateness	.894	.658	.845
Technical merit	.796	.729	.816
Aesthetic appeal	.843	.667	.770
Overall creativity	.878	.755	.839
Hiring potential	.916	.796	.884

Table 4-5. Correlation matrix of creative dimensions related to overall creativity

Variables	Novelty	Appropriateness	Technical merit	Aesthetic appeal	Overall creativity
Novelty	---	.805*	.704*	.749*	.845*
Appropriateness	.805*	---	.711*	.735*	.818*
Technical merit	.704*	.711*	---	.709*	.714*
Aesthetic appeal	.749*	.735*	.709*	---	.755*
Overall creativity	.845*	.818*	.714*	.755*	---

* Correlation is significant at the 0.05 level ($p < .05$)

Table 4-6. Multiple regression analysis of overall creativity

Predictor variables	Slope (b)	Std. error	Beta	t	Sig.
Novelty	.434	.042	.429	10.235	.000*
Appropriateness	.331	.047	.293	7.074	.000*
Technical merit	.109	.040	.097	2.745	.006*
Aesthetic appeal	.153	.039	.150	3.970	.000*

* Significance at the 0.05 level ($p < .05$)

$R = .886$, $R^2 = .785$

Table 4-7. Model summary from stepwise methods in multiple regression analysis

Predictor variables	R	R ²	Adjusted R ²	Standard error
Novelty	.845	.715	.714	.738
Novelty, appropriateness	.876	.768	.767	.666
Novelty, appropriateness, aesthetic appeal	.884	.781	.779	.648
Novelty, appropriateness, aesthetic appeal, technical merit	.886	.785	.783	.643

Table 4-8. Correlation matrix of creative dimensions related to hiring potential

Variables	Novelty	Appropriateness	Technical merit	Aesthetic appeal	Hiring potential
Novelty	---	.805*	.704*	.749*	.843*
Appropriateness	.805*	---	.711*	.735*	.814*
Technical merit	.704*	.711*	---	.709*	.719*
Aesthetic appeal	.749*	.735*	.709*	---	.779*
Hiring potential	.843*	.814*	.719*	.779*	---

* Correlation is significant at the 0.05 level ($p < .05$)

Table 4-9. Multiple regression analysis of hiring potential

Predictor variables	Slope (b)	Std. error	Beta	t	Sig.
Novelty	.453	.047	.401	9.722	.000*
Appropriateness	.333	.051	.264	6.469	.000*
Technical merit	.119	.044	.095	2.732	.007*
Aesthetic appeal	.247	.042	.217	5.825	.000*

* Significance at the 0.05 level ($p < .05$)

$R = .889$, $R^2 = .791$

Table 4-10. Model summary from stepwise methods in multiple regression analysis

Predictor variables	R	R ²	Adjusted R ²	Standard error
Novelty	.843	.711	.711	.827
Novelty, appropriateness	.874	.763	.762	.750
Novelty, appropriateness, aesthetic appeal	.887	.787	.786	.711
Novelty, appropriateness, aesthetic appeal, technical merit	.889	.791	.789	.706

Table 4-11. Rankings of overall creativity and hiring potential by culture

Creativity						Hiring potential					
Thai practitioners			U.S. practitioners			Thai practitioners			U.S. practitioners		
Portfolio #	M	SD									
02	5.40	0.94	02	5.44	1.46	02	5.30	1.13	07	5.31	1.66
11	5.15	1.04	07	5.38	1.45	07	4.75	1.25	02	5.13	1.54
07	4.95	1.00	11	5.31	1.08	11	4.75	1.33	01	5.06	1.57
06	4.90	1.52	01	5.13	1.41	06	4.65	1.42	11	5.06	1.12
10	4.50	1.28	05	5.00	1.71	10	4.40	1.54	10	4.88	1.15
03	4.40	1.10	06	5.00	1.71	03	4.20	1.06	06	4.81	1.60
05	4.20	1.36	10	4.94	0.93	05	3.80	1.61	08	4.75	1.44
08	4.00	1.34	03	4.75	1.61	12	3.80	1.44	03	4.69	1.62
09	4.00	1.08	08	4.56	1.59	01	3.70	1.72	05	4.63	1.82
12	3.95	1.05	12	4.44	1.31	08	3.70	1.78	12	4.50	1.41
01	3.80	1.32	04	4.38	1.45	09	3.70	1.53	04	4.38	1.59
04	3.55	1.19	09	4.38	1.15	04	3.30	1.34	09	4.31	1.35

Table 4-12. Means and standard deviations of creative dimensions by culture

Variables	Thai practitioners (n=20)		U.S. practitioners (n=16)	
	M	SD	M	SD
Novelty	4.22	1.29	4.84	1.38
Appropriateness	4.23	1.15	4.84	1.23
Technical merit	4.43	1.25	5.09	1.11
Aesthetic appeal	4.36	1.28	4.67	1.43

Table 4-13. Multiple regression analysis of hiring potential based on Thai practitioners' evaluations

Predictor variables	Slope (b)	Std. error	Beta	t	Sig.
Novelty	.416	.071	.352	5.893	.000*
Appropriateness	.431	.078	.325	5.499	.000*
Technical merit	.049	.071	.040	.686	.493
Aesthetic appeal	.274	.078	.230	3.528	.000*

* Significance at the 0.05 level ($p < .05$)

$R = .881$, $R^2 = .77$

Table 4-14. Multiple regression analysis of hiring potential based on U.S. practitioners' evaluations

Predictor variables	Slope (b)	Std. error	Beta	t	Sig.
Novelty	.499	.062	.461	8.009	.000*
Appropriateness	.249	.069	.205	3.622	.000*
Technical merit	.166	.058	.123	2.830	.005*
Aesthetic appeal	.233	.051	.223	4.606	.000*

* Significance at the 0.05 level ($p < .05$)

$R = .892$, $R^2 = .796$

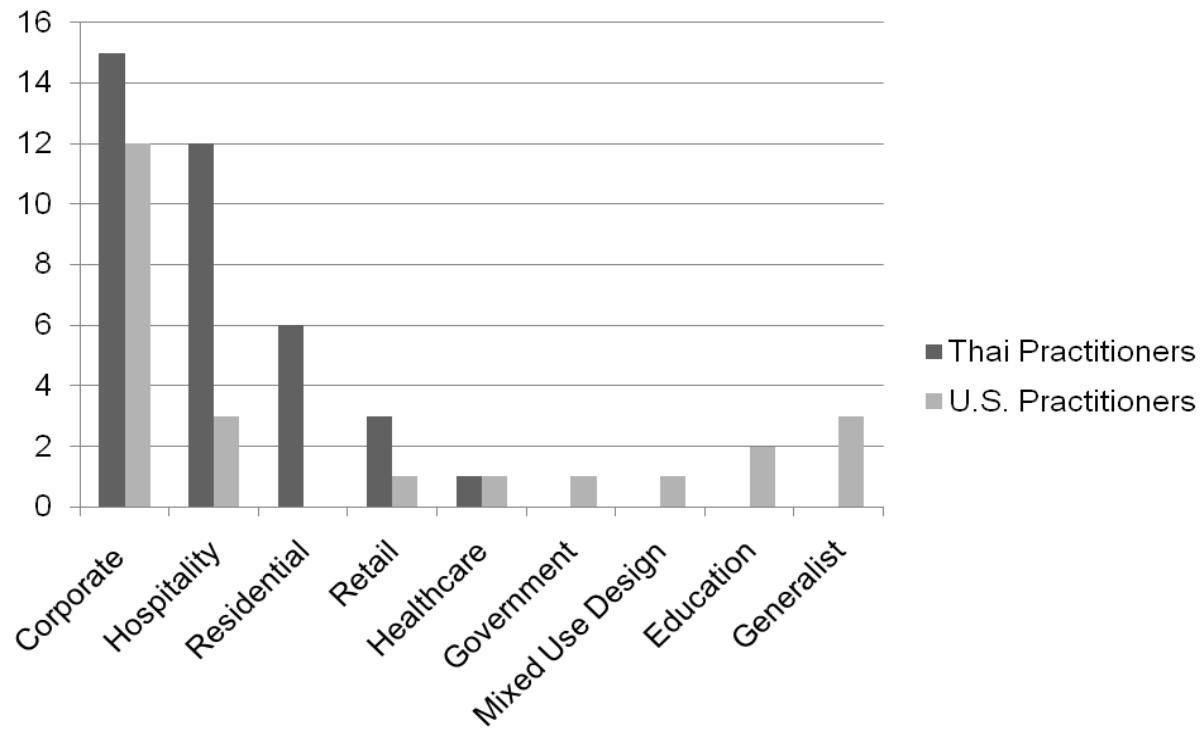


Figure 4-1. Design specialties by culture

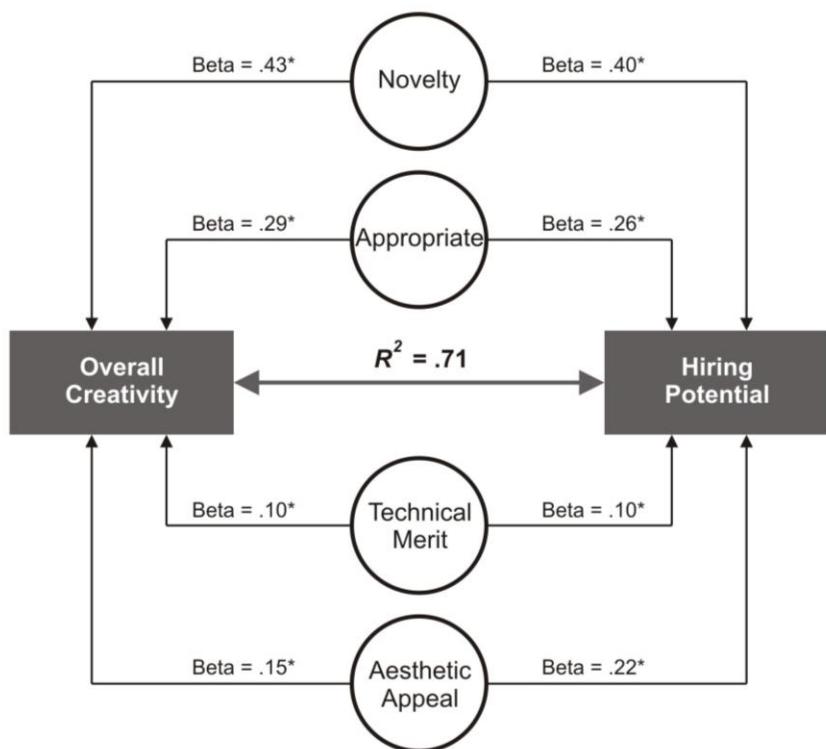


Figure 4-2. Model describing overall creativity, hiring potential, and creative dimensions

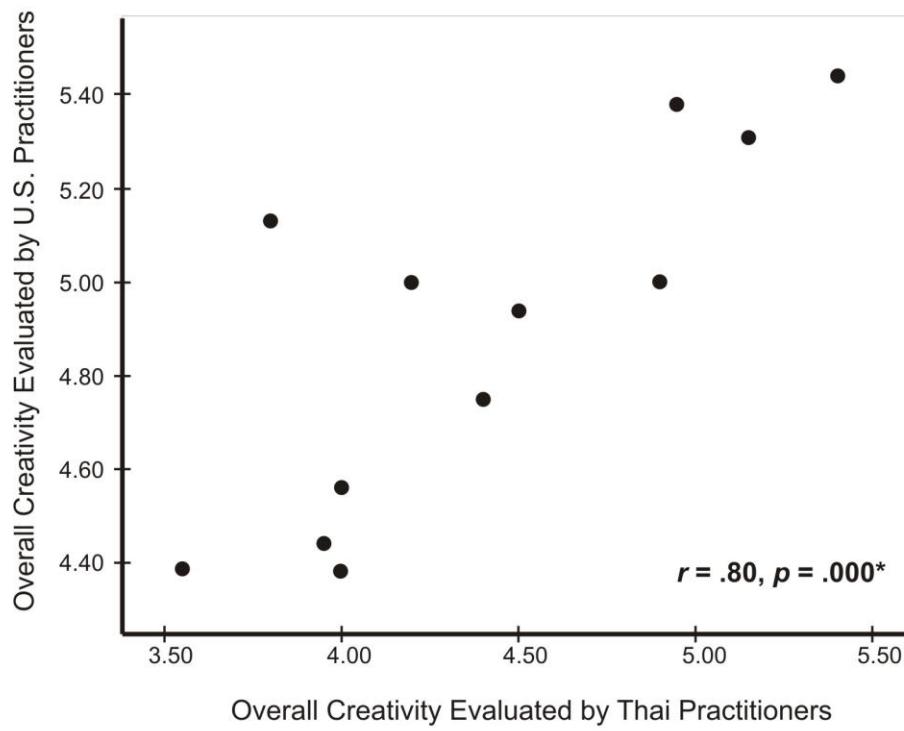


Figure 4-3. Scatterplot of overall creativity by culture

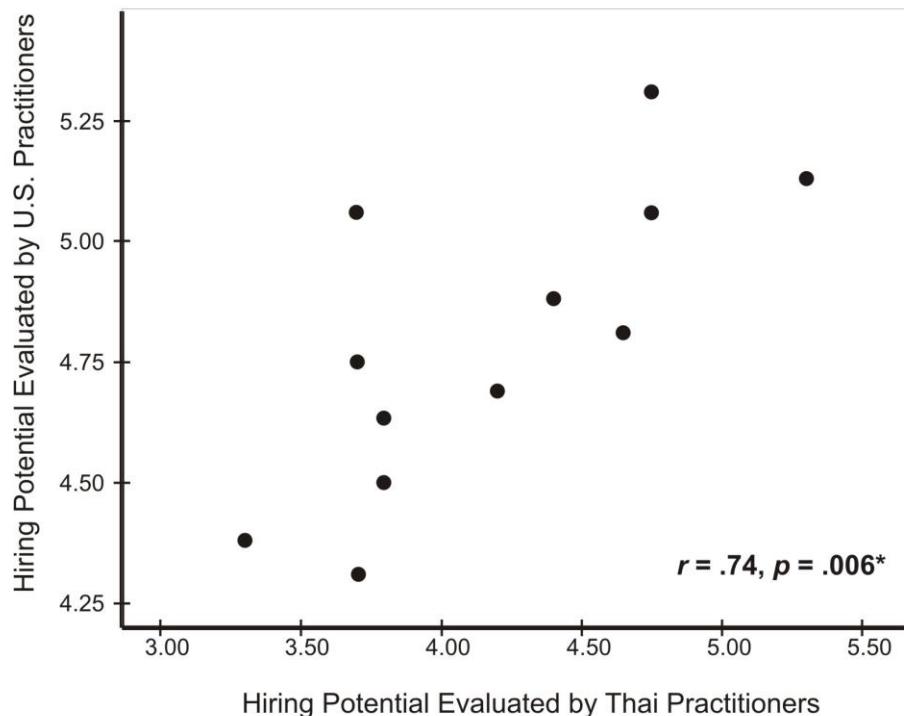


Figure 4-4. Scatterplot of hiring potential by culture

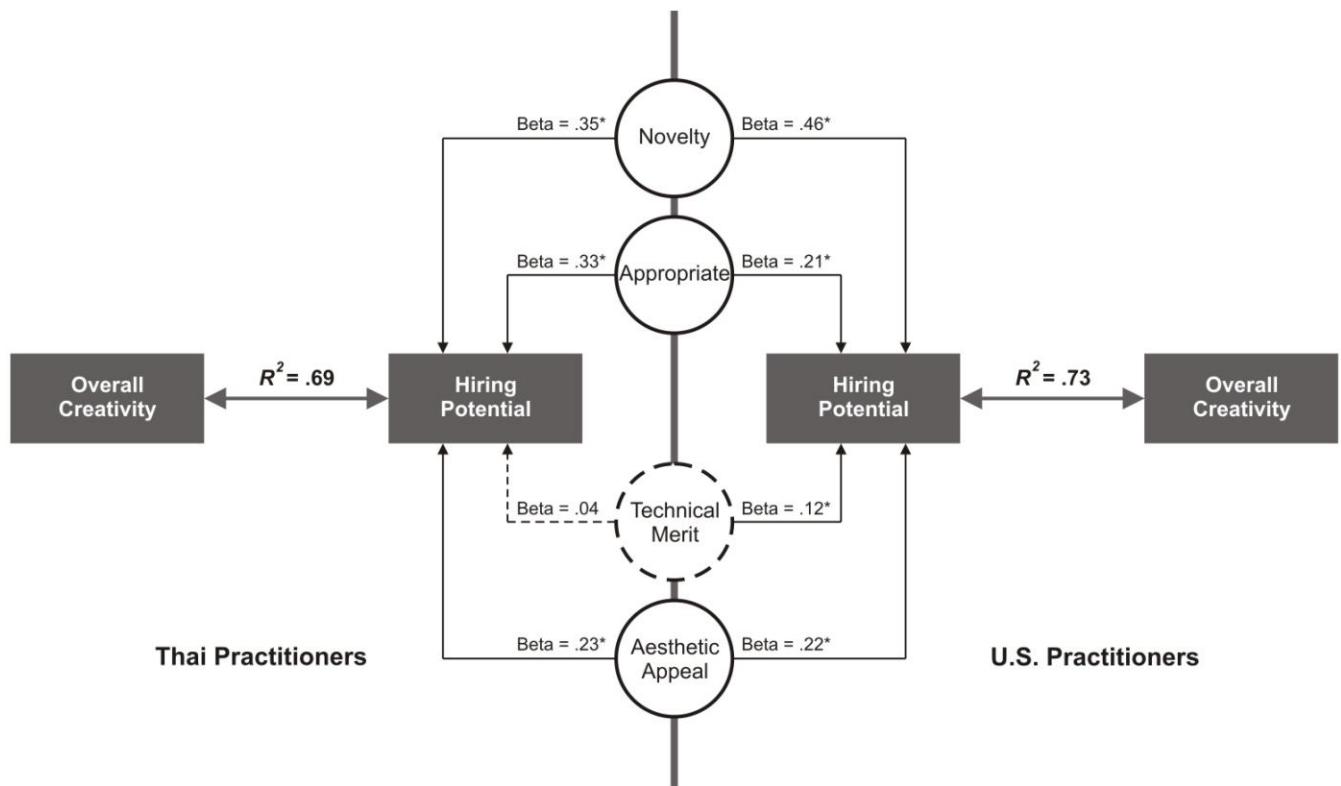


Figure 4-5. Model describing assessment criteria by culture

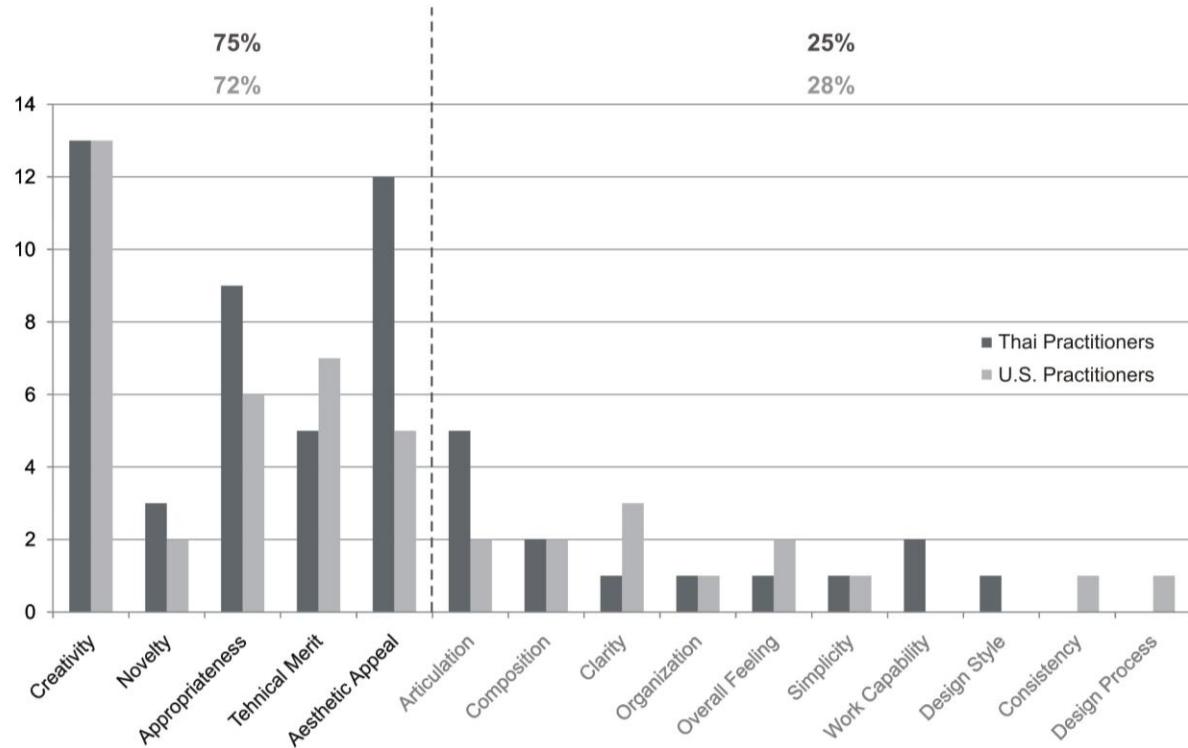


Figure 4-6. Qualitative portfolio assessment criteria by culture

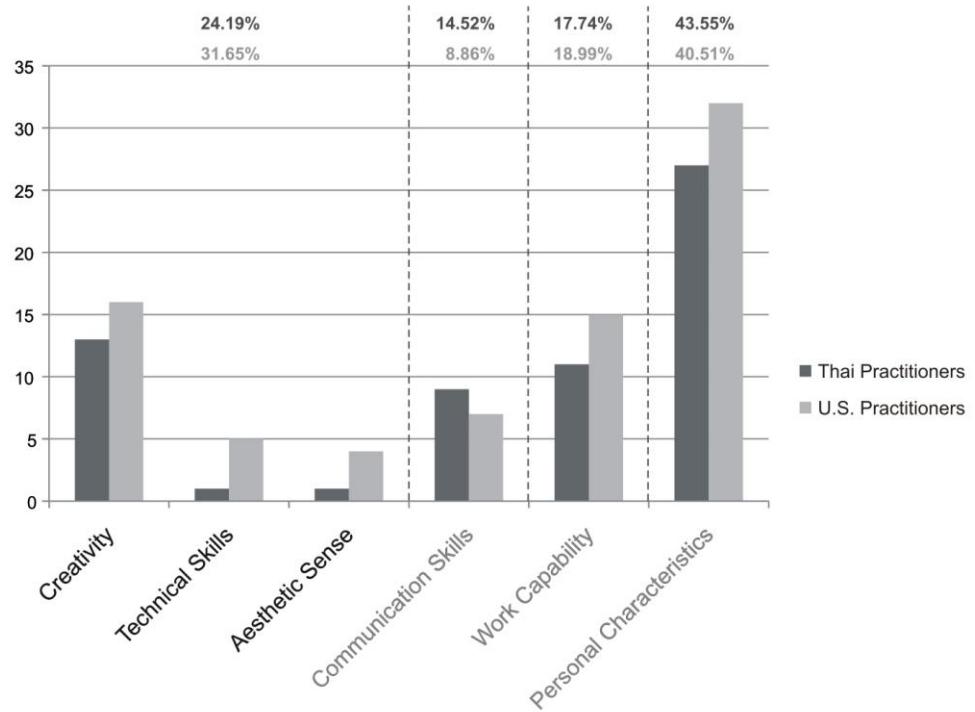


Figure 4-7. Qualitative hiring considerations by culture

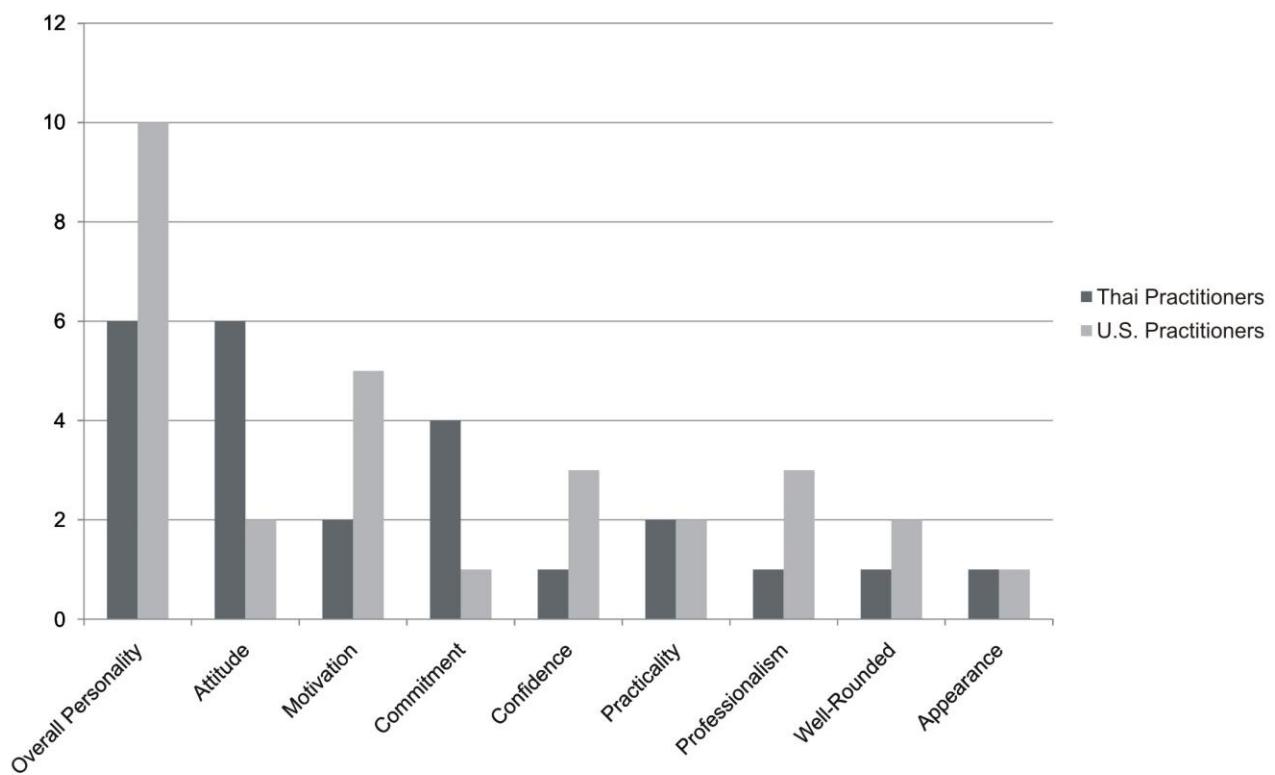


Figure 4-8. Personality traits and characteristics by culture

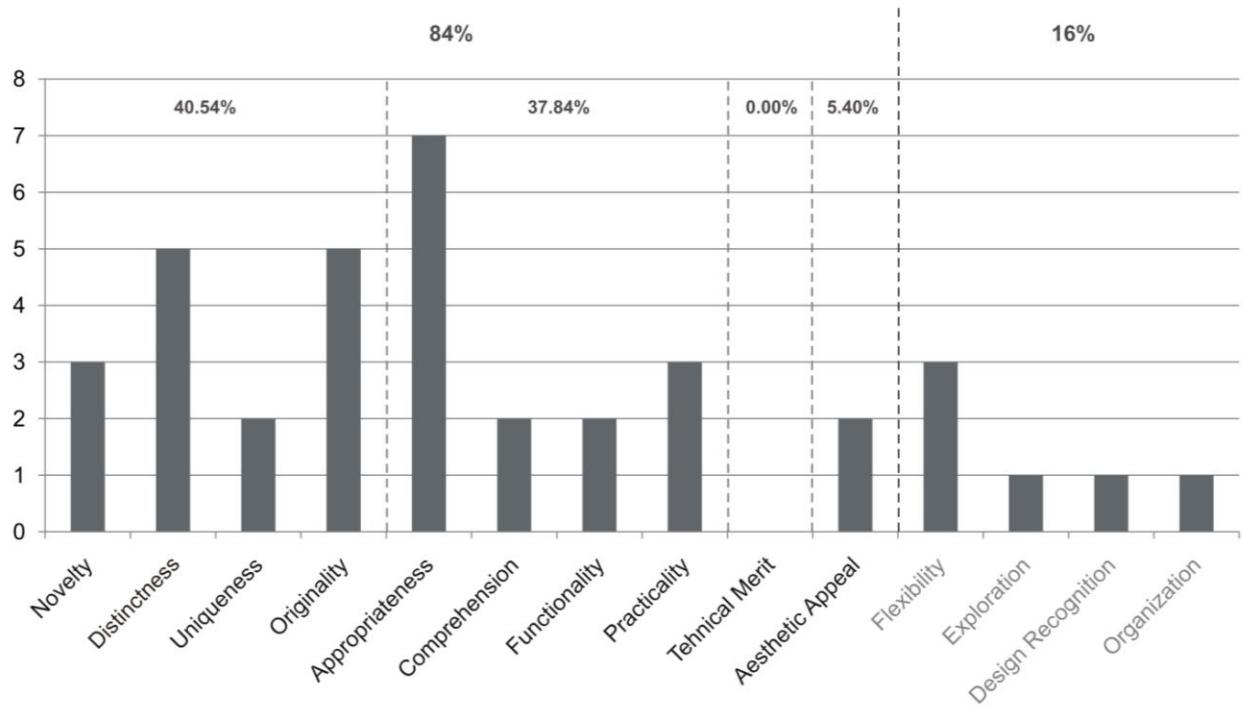


Figure 4-9. Thai practitioners' definitions of creativity in design

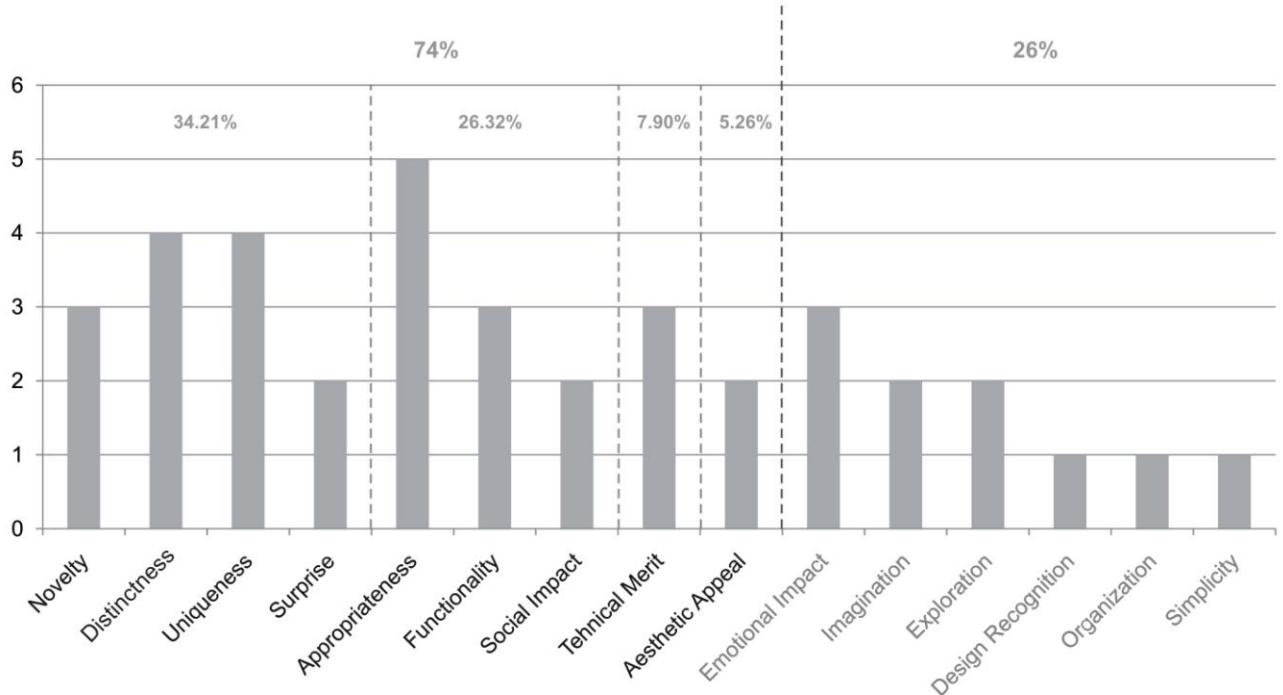


Figure 4-10. U.S. practitioners' definitions of creativity in design

CHAPTER 5 DISCUSSION

Introduction

Creativity, like food, is real, exists in many different forms, and provides sustenance. It is time, then, to go out into the real world and start sampling from the nourishment provided by the master chefs producing feasts of delicacies all over the world. By continuing to restrict ourselves to a bland diet..., we shall never learn the full range of tastes and foods... (Tardif & Sternberg, 1988, p. 440)

In *The Nature of Creativity*, published over two decades ago, Tardif and Sternberg (1988) concluded that researchers have begun to differentiate facets of creativity. Since then, we have seen considerable progress in those efforts, including a consensus on the definition of creativity and the development of creativity measurements. However, Mayer (1999) identified critical issues that still need clarifying, such as whether creativity is individual or social; whether it is domain-general or domain-specific; and whether it is quantitative or qualitative. Recently, considering the importance of globalization and innovation around the world, Rank, Pace, and Frese (2004) called for more attention to social factors of creativity, especially cross-cultural studies. This appears consistent with the current state of creativity research, which requires additional studies in different cultures and disciplines (Kaufman & Baer, 2005; Kaufman & Sternberg, 2006).

Contributing to the discipline-specific creativity research, this dissertation study employed a field-based research strategy to explore cross-cultural perceptions of creativity in interior design. More specifically, the study compared Thai and U.S. senior-level designers completing a paper-and-pencil assessment of digital portfolios created to secure entry-level employment in design practice. Designer participants from both cultures evaluated 12 portfolios on hiring potential, overall creativity, and the creative dimensions: novelty, appropriateness, technical merit, aesthetic appeal. After

completing the assessment, the participants then elaborated on their responses to the portfolios and further described their views on creativity.

In the present chapter, the researcher discusses the study results in relation to relevant literature on discipline-specific creativity, assessments of creative products, and cross-cultural creativity research. The chapter starts by speaking to the study with regard to the field-based research approach in investigating creativity in interior design. The next sections discuss primary results and further interpret the findings by research question. Finally, this chapter summarizes research limitations and directions for future research, and offers conclusions and implications.

Studying Creativity within Interior Design

Field-based research requires investigators to “go to where the people they will study...are and spend time with them in their territory” (Bogdan & Biklen, 1998, p. 73). Adapting this strategy, the researcher collected data from designer participants at their respective firms. Instead of investigating the participants during their hiring processes, the researcher asked them to participate in the study procedure, which was formalized but still reflected the actual hiring process. This helps strengthen ecological validity, which determines how well results can be generalized from a research setting to real-world situations (Gall et al., 2007). Further, while many studies center on only the individual aspect of creativeness, this dissertation research also emphasizes the social factor based on Csikszentmihalyi’s (1988) systems theory, involving interactions among the domain, the person, and the field. In this study, the domain mainly refers to the interior design discipline; the person comprises design graduates; and the field consists of design professionals as real-life gate keepers to the domain. The following sections discuss ecological validity of this study according to the main components of the theory.

The domain represents “the set of rules and procedures that constitute the realm in question” (Nakamura & Csikszentmihalyi, 2003, p. 187). In the discipline of interior design, educational and professional sectors play important parts in governing canons for learning and practicing. Although both groups agree on the importance of creativity, it is still doubtful whether they hold the same definitions of creativity. Some scholars found variations among students’, educators’, and designers’ standards (Barnard, 1992; Lee & Hagerty, 1996); however, educators and practitioners often share common criteria when judging students’ projects (Portillo, personal communication, September 1, 2010). This query seems critical for interior design graduates who have learnt to be creative from their professors, and have to prove their creative ability to experienced designers to start their careers. The hiring process in design practice typically takes place in a conference room at a design firm and involves a portfolio review and interview with a candidate whose portfolio has passed the initial screening. To address this issue, the present study exclusively explored the assessment of creativity in portfolios, which is a vital part of entry-level employment.

The researcher employed the Consensual Assessment Technique (CAT) as a procedure similar to the actual portfolio review. In reality, though, designers do not utilize a form listing specific criteria to assess portfolios. Using the CAT with the assessment form, this study formalized the evaluation procedure while reflecting the actual screening. Hennessey and Amabile (1999) affirm that the CAT “is similar to real-world assessments of creativity – where appropriate judges...make ratings of products in their domain” (p. 351). Some of the designers participating in this study validated the similarity of the portfolio assessment to processes their firms used to screen job

applicants. A Thai practitioner described his firm's first-cut procedure as "similar to the review process we did for the study" (TH-01). Likewise, a U.S. judge noted that "[the review process] hit the point that we would typically look at in a portfolio. If you take that personality aside, this is the kind of things we would be looking at" (US-12). During an actual hiring process, an applicant whose portfolio has passed the review would be invited to verbally present his/her work. It is important to note that the participants in this study did not meet students who created the portfolios; however, responses from the interview revealed the full hiring process. These support validity of the study results to apply in the real-world employment.

Graduating students who created the portfolios reviewed in this study were "predisposed by...early experience to become interested in [the domain of interior design]" (Nakamura & Csikszentmihalyi, 2003, p. 187). To become designers, these students need to show their compilation of personal efforts, design abilities, and creativity in a portfolio as a means for employment (Linton, 2008). The sample of portfolios reviewed in this study belonged to interior design graduates who were using expanded versions of these portfolios to apply for jobs in reality. The use of the real portfolios confirms the study methodology as comparable to the real-world situation and enhances the generalizability of the study results.

The other aspect of the systems model recognizes the field, "which consists of the gate keepers to the domain and either encourages or rejects the person's innovations to the domain" (Nakamura & Csikszentmihalyi, 2003, p. 187). In this study, Principals and Design Directors represent the gate keepers experienced in reviewing portfolios and making hiring decisions. All participants in the study were senior-level practitioners from

prominent firms in Bangkok and Atlanta. The participants mostly engaged in corporate design. A majority of the participating firms specialized in commercial design, while also offering other services, such as hospitality and healthcare design. These firms have received national and/or international awards and recognition in design and architecture areas (e.g., “ASA Award 2010,” 2010; Davidsen, 2010). Graduating students and educators can benefit from the insights of the noted designers participating in this study.

Finding Interpretations

The following sections discuss principal themes of the study results and then thoroughly interpret the findings based on the research questions. The findings mainly support three premises: creativity as a discipline-specific phenomenon, the universal perception of creativity in interior design, and the importance of persuasion in design creativity. The interpretations of the findings by research question are organized into three parts: relationships among assessment criteria, the practitioners’ assessments of creative portfolios, and the practitioners’ interview responses.

Creativity as a Discipline-Specific Phenomenon

This study provides evidence to address a critical question in creativity research: can we apply creativity in general or in a specific area? Simon (2001) posits that creative processes universally appear in “usual processes of human thinking...to produce something that is new and valuable” (p. 213); however, realizing those thought processes “require[s] extensive exposure to, and experimentation with, examples of thinking in a variety of domains” (p. 217). On the other hand, Baer (1998) argues that even if the creative process is proven general, a domain still plays a vital role in the creative performance. Results of this study reinforce Baer’s argument, in that expertise in a specific discipline influences how creativity is assessed and perceived.

Focusing on the realm of interior design, this dissertation study supports important roles of the domain and the field, as the social factors of creativity according to Csikszentmihalyi's (1988) systems theory. In this study, Thai and U.S. practitioners – the gate keepers to and also experts in the domain, agreed on their judgments of creative portfolios and recognized similar aspects, including but not limited to novelty, appropriateness, technical merit, and aesthetic appeal, when defining creativity in design. The results endorse Amabile's (1996) assumption that experts in a domain tend to employ similar criteria in judging creative outcomes in that domain.

Scholars have proposed several aspects to define creative products across disciplines; however, the majority agrees upon novelty and appropriateness (Averill, 2005; Gruber & Wallace, 1999; Hokanson, 2010; Jackson & Messick, 1965). There exists disagreement on other criteria, such as aesthetic and sensory aspects, which seem specific to some domains (e.g., Amabile, 1996; Eichenberger, 1978; Horng & Lin, 2009). In allied design areas, Barnard (1992) – interior design, Casakin and Kreitler (2008) – architecture, Christiaans (2002) and Dorst and Cross (2001) – industrial design, suggested technical and aesthetic merits as domain-relevant considerations to identify creative works. This dissertation research supports those previous studies, in that novelty, appropriateness, and other discipline-relevant aspects, including technical and aesthetic merits, appear related to creativity in design. Interestingly, practitioners involved in this study had academic backgrounds in interior design ($n = 24$) or in architecture ($n = 12$); however, they considered similar aspects in assessing creative portfolios and defining creativity. This implies that design disciplines share a common language and provide similar training, values, and standards inherit to the domain.

Design fields exist in between the arts and sciences, but laypeople often associate design with art. As Goldschmidt (1999) described, regarding aesthetics, “appearance of [design work] is naturally related to the visual arts” (p. 526). However, design creativity is not identical to artistic creativity. Design entails both functionality and aesthetics, so designers act as synthesizers who solve problems in an integrative way. “The capacity for synthesis is...a quality of the creative designer” (Goldschmidt, 1999, p. 526). Cross (2001) and Christiaans (2002) stated that design fields have their own particular criteria in defining creativity: “unlike art, design includes more objective aspects that mainly involve the functionality and technical quality of the design” (Christiaans, 2002, p. 53). Confirming the close relationship of novelty, appropriateness, technical merit, and aesthetic appeal, to overall creativity, this dissertation study distinguishes qualities of creative design works from those of scientific or artistic creative outcomes.

The study findings also show that the domain influenced Thai and U.S. designers’ perceptions of creativity. Csikszentmihalyi (1988) posits that, to perceive creativity, one needs to have information that has been stored in “the symbol system of the culture, in the customary practices, the language, [or] the specific notation of the domain” (p. 330). Reinforcing this notion, the results reveal that practitioners often defined creativity in relation to discipline-relevant knowledge. The following presents examples of creativity definitions supplied by designers in the present study:

Creativity, in my view, is initially derived from the understanding of the fundamentals. It is a collection of experiences in design, whether it is the great design that you have seen, the understanding of spaces or color schemes, or even the understanding of the overall composition... (TH-13)

Creativity is taking a space and making it work for the client, but also doing something unusual, something that you would not expect. That still works technically and will hold up over time in that it is unique to that space. (US-12)

The majority of both Thai (78.38%) and U.S. (60.53%) participants included novelty and appropriateness in their creativity concepts; this endorses the universal understanding that these two attributes are involved in creativity. Lubart and Guignard (2004), however, claim that different domains may value these attributes differently, and this could be reflected when judges assign weights. For example, visual artists may focus on novelty, while those in medical fields may emphasize appropriateness in judging creativeness. When defining creativity, designers in the current research considered novelty and appropriateness as almost equally important, while also recognizing technical and aesthetic merits as well as other domain-relevant criteria, such as design recognition and organization.

However, we should note that the results could be affected by designers' personal philosophies and firm/market sector orientations. Design exists in between the arts and sciences, so design practitioners may have their own design philosophies gravitating to different directions. Art-oriented designers are probably attracted to innovative ideas, while those with science-oriented philosophies may be drawn to appropriate solutions. Moreover, the majority of the participants in this study practiced corporate design. The findings could have been different if the designers had engaged in other design sectors. For instance, healthcare design professionals, who need to cope with medical treatment constraints in order to create properly functional designs, might be concerned about appropriate design solutions more than those professionals in the hospitality sector, who seem to gravitate more to novelty.

Universal Perception of Creativity in Interior Design

The study findings confirm that Thai and U.S. designers had high consensus in their assessments of creative portfolios and definitions of creativity. When evaluating

creative portfolios, both groups of practitioners considered novelty, appropriateness, technical merit, aesthetic appeal, and other discipline-relevant criteria, such as articulation and composition. No cultural differentiation surfaced in the assessments, and the findings support previous cross-cultural research on judgments of creative artworks. Niu and Sternberg (2001) and Chen et al. (2002) indicated no significant cultural influence on the American and Chinese evaluations of creative artistic products created by American and Chinese college students. Compared to the current research, those two studies employed a larger sample size of creative products (139 collages and drawings, and 294 drawings) because each artwork required a small amount of time to create and evaluate in an experimental setting. Both studies also recruited non-expert judges to evaluate the artworks. In contrast, the sample of portfolios used in this study was actually utilized in the field and entailed a longer and harder process for the students to produce and for the practitioners, as experts in interior design, to assess. Hence, the results basically support the universal perception of discipline-specific creativity; experienced designers from different parts of the world do share similar considerations in defining creative design works.

Moreover, both groups of practitioners acknowledged that the portfolios provided insight into the design process. When reviewing a portfolio, a practitioner sees “how much the student is able to develop his/her concept into the presentation. This would indicate his/her process of thinking and how well he/she can turn that idea into a tangible form” (TH-01). Interestingly, high-creative portfolios seemed to portray the process behind them better than those with low creativity. Designer judges described high-creative portfolios as “having an understanding of the process” and “reflecting the

thought process and design details.” This supports the importance of the portfolio as a tool to assess a designer’s design skills and creative talent (Linton, 2008). Likewise, Eisenman (2006) stressed that showing the thought process through a portfolio can positively affect a reviewer’s perception.

When discussing creative design works, Thai and U.S. designers often referred to design visual elements. For example, a practitioner explained, “It is not just planes of color. It has textures...that had been considered as well as the shape of the space, and creativity and thoughts going further” (US-13). Designers also related the creative attributes: novelty, appropriateness, technical merit, and aesthetic appeal, to design elements. They saw a portfolio having novelty because “the [concept] was unique and stood out from the others.” They viewed a portfolio as appropriate when its content “responded to the reality limitation.” When rating technical merit, designers considered “techniques that added [*dimensions*] to the work.” They looked for “a good sense of [*scale and proportion*] and also a very good sense of [*materials and color*]” to evaluate aesthetic appeal. This supports the importance of expert judges and their familiarity with the discipline in assessing the portfolios as creative outcomes.

Regarding the conceptual model developed from the systems theory, this dissertation study considers the realm of interior design and culture as the domain, which affects the person and the field in creating and evaluating creativity (Figure 1-1). Figure 5-1 summarizes practitioners’ conceptions of creativity in relation to the discipline and culture. Focusing on the context of interior design, both Thai and U.S. designers involved novelty, appropriateness, aesthetic appeal, exploration, design recognition, and organization in their definitions of creativity. It is important to note that these

dimensions did not stand alone but appeared interconnected in the creativity concepts. The findings appear in line with Portillo's (2002) research indicating originality and exploration as associated with creativity in design fields. Most importantly, the results suggest that, regardless of culture, the domain of interior design shapes practitioners' perceptions of creativity by universal canons, values, and focuses. Designers seem unlikely to be completely insular, and even though they work in different parts of the world, they do share similar fundamentals and standards.

Nevertheless, culture also influences designers' perceptions, including their own personal notions of creativity. The present study found no cultural differentiation surfacing in the assessments of creative portfolios, and the two groups of designers generally agreed on their concepts of creativity. However, minor cultural distinctions emerged in their definitions. Figure 5-1 illustrates that Thai designers viewed flexibility in ideas and design solutions as an attribute of design creativity, whereas U.S. designers considered technical merit, emotional impact, imagination, and simplicity. The findings seem inconsistent with previous literature on Thai creativeness. Saengpunya (2005) and Panjamawat (2005) found that Thai creative eminences and college students occasionally associated flexibility with creativity. However, we should note that those studies explored domain-general creativity, while this dissertation study focused on discipline-specific creativity. Additionally, Saengpunya (2005) interviewed three Thai artists and designers and indicated imagination as the only domain-specific creative attribute. Interestingly, this does not support Thai designers' responses in this study, but appears consistent with U.S. practitioners' creativity definitions and literature on U.S. design creativity. Employing implicit theories, Portillo (2002) found imagination as one of

the primary characteristics of creative talents in interior design, architecture, landscape architecture, and engineering. This possibly implies that imagination could be another universal aspect of design creativity; however, regarding the limited sample size in Saengpunya's research, further studies on this issue are necessary.

The interview responses reveal cultural differentiation in practitioners' discernment of the portfolios. Although the researcher did not inform designers that the portfolios belonged to Thai students, U.S. participants could notice that they came from another country. "I think there's more richness in terms of [coloration] that I don't see as often" (US-04). The Thai portfolios showed a hue variation more than regular U.S. portfolios. "I think the graphic composition, and this can be sort of cultural, was a little busy" (US-10). Graphics of these portfolio presentations appeared busier and contained more details than U.S. design students' works. Furthermore, in assessing the Thai portfolios, Thai practitioners showed higher consensus in their judgments than their U.S. counterparts whose agreement on appropriateness and aesthetic appeal of the portfolios was slightly low. This suggests that culture is a market differentiating factor in the context of interior design. Although designers around the world seem to share similar standards in creating and judging design works (Ledoux & Ledoux, 2010), a culture still influences design styles in each country. This could explain why U.S. designers who were less familiar with Thai design styles had a harder time judging appropriate and aesthetic values of the portfolios than Thai practitioners.

Persuasion as an Important Factor in Discipline-Specific Creativity

Based on the interview responses, in addition to creativity in portfolios, designers stressed that they need to assess candidates' work capability, communication skills, and personality characteristics before finalizing their hiring decisions. Job applicants

should “present themselves in a way that clearly conveys their own identities” (TH-17) and must have “a sense of the person and their ability to work” (US-08). Practitioners mostly focus on overall personality because they “try to get young designers in front of clients..., so those ‘people-skills’ are very important” (US-17). Interestingly, these results support persuasion, the ability to communicate with others and persuade them of one’s creative work (Simonton, 1990), as a vital factor of design creativity. Practicing design, designers do not only solve design problems creatively, but also need to be capable of presenting and selling the solutions to coworkers and clients. The findings also reinforce the vital roles of the social factors: the domain and the field, in influencing creativity in design. A designer who can creatively produce design works may not be accepted as creative if others in the domain do not think so. In other words, to be creative in the interior design realm, only the individual factor is not enough; designers should be able to communicate well with and persuade others to believe in their works.

Supporting this premise, MacKinnon (1962) explored personal characteristics of creative architects and indicated that they are “possessed of those qualities and attributes which underlie and lead to the achievement of social status” (p. 490). Dudek and Hall (1991) further examined living architects in MacKinnon’s research. Interviews with the architects revealed that commitment, drive, and persuasive skills critically influenced their success in the late stage of their careers. Similarly, Guest (2010) recently proposed a list of basic knowledge and skills that design professionals ask for from entry-level designers. The top of the list included “communication abilities” which distinguish “the successful designer from others,” “understanding and willingness to contribute to a team,” and “willingness to continue to learn” (p. 170-171).

Relationships among Assessment Criteria

The following sections focus on detailed interpretations of findings based on the research questions. For the first three questions, the results from the combined sample reveal designers' perceptions of the assessment criteria. Moreover, the findings show relationships among overall creativity, hiring potential, and the creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal.

- Question 1: Do experienced design practitioners perceive overall creativity in entry-level interior design portfolios as predicting hiring potential?
- Question 2: What is the relative importance of the creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal, in predicting overall creativity in portfolios?
- Question 3: What is the relative importance of the creative dimensions in predicting practitioners' evaluations of portfolios in terms of perceived hiring potential?

First of all, the findings confirm that overall creativity expressed in portfolios was closely related to hiring potential as perceived by designers. This supports Dohr (1982) who claimed that: "Interior design educators and practitioners expect design programs to provide opportunities for students to develop their creativeness" (p. 24). Nelson (2010) also endorsed the importance of creativity in this digital age and suggested that "practitioners may need to be retrained to be more creative, and students will need to be taught creativity and technical skills side by side" (p. 192). Likewise, Hokanson (2010) stressed the role of creativeness in design firms: "The effective creativity of the individual design firm may be what distinguishes the firm from competitors, and that which leads to entrepreneurial success" (p. 18).

The results also indicate that the creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal, were closely associated with overall creativity and

hiring potential. When assessing portfolios, designers considered not only overall creativity, but also the creative dimensions as indicating the perceived potential to call applicants for an interview or even hire them. This is in line with Levins' (2006) work on portfolio evaluations, which found close relationships among novelty, resolution – which represents the appropriate value, style – which includes technical skills and aesthetics, overall creativity, and hiring potential. Additionally, Barnard's (1992) study on judgments of interior design works supports the associations among overall creativity, technical merit, and aesthetic appeal.

Two decades ago, Baker and Sondhi (1989) proposed that, in the interior design realm, “[an academic] degree alone is not enough on which to base a hiring decision. The majority of [experienced designers] base this decision primarily on the portfolio” (p. 37). This claim remains valid nowadays. As Linton (2008) emphasized, “[P]ortfolios assist [experienced designers] in understanding of not only individual designers and their work but also their larger design vision...” (p. 92), and a well-prepared portfolio can help a designer gain employment. Similarly, findings from this study confirm the important role of creative portfolios in the hiring process.

The multiple regression analysis shows that novelty linked most closely with overall creativity, followed by appropriateness, aesthetic appeal, and technical merit, respectively. Likewise, using concept analysis, Pedersen and Burton (2009) found that novelty and ideation appeared most frequently in concepts of creativity supplied in published design literature on creativity. “Novelty and originality are also often seen as a criterion in the judging of creative [design] products” (p. 25). With appropriateness as the second highest influence on overall creativity, the findings endorse the general

consensus involving the two main attributes of creative design works. Additionally, the analysis shows that the creative dimensions could also predict hiring potential, and their relative importance appeared in the same order as in predicting overall creativity.

The study results seem comparable to Levins' (2006) research, focusing on the assessment of creative design portfolios. In Levins' study, novelty – the newness of a portfolio, appeared as the best indicator of creativity in portfolios, followed by style – the development and polish of a portfolio; whereas resolution – the appropriate, functional value of a portfolio, did not impact creativity. Findings from both studies support novelty as a leading component of creative portfolios; however, only results from the present study indicate appropriateness. The contrasting results between these studies could stem from interpretations of the criterion since the studies used different terms to signify the functional value of a portfolio. Although “resolution” and “appropriateness” sound interchangeable, they may convey diverse meanings to judges. Due to intricacy in defining the functional quality, judges may need additional information to be able to fully assess the criterion. A participant in the present dissertation study commented, “It's hard to sort of judge whether it's an appropriate design solution or not because there's still...a lot of things that aren't addressed in terms of the students' solutions” (US-08). These results suggest that novelty is easier to identify than appropriateness, which requires more knowledge and expertise to recognize and may rely more heavily on an explanation of the design works.

Having less influence on overall creativity and hiring potential, aesthetic appeal and technical merit still impacted those aspects. As Amabile (1996) recommends, in assessing any creative product, judges “should make ratings of the technical aspects of

the work and...its aesthetic appeal as well. This would then make it possible to determine whether creativity is related to or independent of those dimensions..." (p. 42). Barnard (1992) categorized 12 criteria to judge interior design projects into three main categories: creativity, aesthetic merit, and technical skills. Aspects in the aesthetics and technical merit groups related to overall creativity; however, criteria in the creativity category, including appropriateness, uniqueness, and originality, had greater impact on overall creativity. This is consistent with the results of the current study. Although novelty and appropriateness appeared more closely related to overall creativity than aesthetic and technical merits, they all impacted overall creativity. This does not only support the general consensus on novelty and appropriateness, but also reinforces the discipline-relevant criteria of technical and aesthetic aspects.

Thai and U.S. Practitioners' Assessments of Creative Portfolios

The next research questions statistically compared Thai and U.S. practitioners' assessments of creative design portfolios. Results from these questions disclose similarities and dissimilarities between the groups of designers' judgments of overall creativity, hiring potential, and the creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal.

- Question 4: How do Thai and U.S. practitioners perceive the overall level of creativity in portfolios and hiring potential?
- Question 5: How do Thai and U.S. practitioners evaluate the creative dimensions in portfolios?
- Question 6: How do Thai and U.S. practitioners perceive overall creativity in portfolios as predicting hiring potential?
- Question 7: How do Thai and U.S. practitioners perceive the creative dimensions in portfolios as predicting hiring potential?

The findings confirm that designers from the cultures under study appeared able to gauge overall creativity in portfolios and perceived hiring potential, and they also saw overall creativity and the creative dimensions influencing their hiring decisions. This reinforces the universal importance of creativity in the interior design realm; regardless of culture, designers do recognize creativity in judging design works and selecting entry-level designers. No cultural differentiation surfaced in the assessments, and the findings support earlier studies on the American and Chinese judgments of creative artworks produced by American and Chinese college students. Niu and Sternberg (2001) and Chen et al. (2002) found no significant cultural impact on the evaluations. Interestingly, in both studies, Chinese judges assigned higher average ratings than did American judges. Niu and Sternberg explained that American judges seemed to hold a higher standard, perhaps because of the higher artistic level of American students' works.

In the present study, Thai designers gave significantly lower average scores on all criteria than did U.S. practitioners. It is possible that Thai designers may be more familiar with design works in the sample of Thai portfolios and tended to underrate the portfolios. On the contrary, U.S. practitioners may find the portfolios different from what they usually see in the United States; this could make them perceive a higher level of creativity in the portfolios than Thai designers did. Importantly, this speaks to the power of novelty in defining creativity in design (Pedersen & Burton, 2009). Supporting this explanation, the interview responses show that most Thai designers ranked the overall quality of the portfolios as average or lower than portfolios they had previously seen. Conversely, U.S. practitioners mostly agreed that the portfolios were of higher quality than other portfolios.

Despite this variation, Thai and U.S. designers showed high consensus in their judgments of all criteria: overall creativity, hiring potential, novelty, appropriateness, technical merit, and aesthetic appeal. Looking at each group, Thai designers agreed highly on every dimension, while U.S. designers showed slightly lower consensus on appropriateness and aesthetic appeal. This was not surprising; in previous studies on assessments of creative products, these two aspects appeared more complex to assess than other criteria. Asking architects to rate students' design solutions on creativity and 13 creative attributes, Casakin and Kreitler (2008) indicated that almost all attributes obtained high inter-rater reliabilities ranging from 0.76 to 1.00. Only usefulness, representing the appropriateness aspect, had a reliability of .65, suggesting a slightly low agreement among the judges. In the present research, designers identified appropriateness as the most difficult dimension to assess due to insufficient information about design projects in the portfolios: "If I had an overall understanding of what the problem was, it would give me a little bit more overview in my mind of what I was looking at and how they did it" (US-02).

Previous related studies also showed a low inter-rater reliability of drawings rated on aesthetics. Rostan et al. (2002) recruited artists and art critics to evaluate children's drawings on aesthetic success, technical skill, and creativity. The results revealed that aesthetic success had the lowest reliability of .57. Runco and Charles (1993) explained that judges' low consensus on aesthetics in design or artistic works could stem from judges' subjectivity and idiosyncratic standards. This could explain the low consensus among U.S. practitioners on appropriateness and aesthetic appeal, which showed more variability in interpretation than the other criteria in this study.

In addition, Thai and U.S. practitioners perceived relative importance of the creative dimensions, in terms of predicting hiring potential, slightly differently. When making their hiring decisions, U.S. designers considered all of the creative attributes, whereas Thai designers focused less on technical merit. This could be due to different interpretations of technical merit. Defining the criterion, U.S. designers may include students' skills in creating design presentations, such as using a computer program to construct a three-dimensional perspective, and their understanding of construction, such as building codes and techniques. However, Thai designers may see only skills to polish design presentations, so they tend to devalue technical merit.

The cultural variation on technical merit could also relate to professional responsibilities in Thai and U.S. design firms. A Thai entry-level designer does not need to do technical work. Typically, Thai firms have specialists to create design drawings and presentations for designers. A Thai participant explained, "Technical skills for design can be learned and taught, or we can find someone else to do that if they don't know how" (TH-18). Conversely, entry-level designers in the United States often start with technical work in a firm. A U.S. participant described, "For me and for my company...as there're more people coming out of school, we're looking to bring their advanced technical skills into our offices" (US-15). Likewise, Nelson (2010) clarified that designers traditionally start a project with creative decisions, refinements, followed by a long time spent documenting the decisions. With digital technology, we can start the documentation in unison with the decisions to enhance the workflow. "To address this,...[design] students will need to be taught creativity and technical skills side by

side" (p. 191-192). This emphasizes the need for entry-level designers who are not only creative, but also capable of using technologies in U.S. design firms.

Thai and U.S. Practitioners' Interview Responses

To supplement the statistical results, the last three research questions explored patterns emerging in the interview responses of practitioners on the portfolios and design creativity. Findings from these questions indicate resemblances and variations between Thai and U.S. designers' considerations in reviewing portfolios and hiring applicants, and also reveal definitions of creativity by culture.

- Question 8: How do Thai and U.S. practitioners describe their primary criteria for assessing portfolios?
- Question 9: How do Thai and U.S. practitioners view creativity in portfolios with respect to hiring potential?
- Question 10: How do Thai and U.S. practitioners define design creativity in their own terms?

The interview responses generally reinforce the statistical findings and reveal that both practitioner groups considered all assessment criteria when screening portfolios at their firms. This supports the roles of overall creativity and its dimensions in an actual portfolio review. However, the assessment form used in the evaluation process may influence the practitioners' awareness of the criteria during the interview. It is important to underline that the purpose of the interview was to offer an opportunity for practitioner judges to elaborate on their assessments rather than to affirm that the designers would actually employ the criteria in their portfolio reviews.

The findings also disclose cultural distinctions between the groups of designers. U.S. practitioners reported overall creativity as the foremost aspect in judging portfolios, while Thai designers considered both overall creativity and aesthetic appeal almost

equally. This is consistent with previous literature stressing the aesthetic value in Thai creative artistic and design products. Comparing creative performances in the sciences, arts and design, and education, Saengpanya (2005) found that Thai artists and designers often associate creative works with aesthetics; scientists regard complicated quality; and educators relate creative products to clarity. Further, Thai practitioners focused on appropriateness more than their U.S. counterparts, who emphasized technical merit. As explained earlier, Thai professionals do not primarily look for technical competency in entry-level designers. Instead, they expect to see new hires' abilities to think creatively and solve design problems appropriately.

Most interestingly, both groups of designers considered novelty when assessing portfolios; however, compared to the other aspects, it was cited the least. Given the statistical results showing that novelty had the closest relation to and highest impact on creativity, practitioners might view novelty synonymously with creativity. As a U.S. participant mentioned, "I think creativity in design is really based on solving your client's problem in a unique way" (US-05). Also, another Thai participant described a creative designer as someone who can design something "that is original and has never been seen before" (TH-18). Another explanation might be that, in real-world practice demands, opportunities to pursue truly novel designs are limited. Clients tend to accept appropriate or appealing design solutions rather than unique solutions. Hence, professionals may look for entry-level designers with skills to design properly more than those who can design uniquely.

When elaborating on actual hiring processes, both groups of designers confirmed creativity in portfolios factored into employment decisions. Nevertheless, to finalize their

judgments, they needed to assess applicants' work capability, communication skills, and characteristics as well. Interestingly, the findings appear inconsistent with the statistical results indicating high influence of the creative dimensions: novelty, appropriateness, technical merit, and aesthetic appeal, on hiring potential. Designers rarely discussed these aspects when finalizing a hiring decision. Further, none of the designers cited novelty or appropriateness. It could be explained that, in an actual hiring process, design professionals only interview applicants whose portfolios were already approved. Hence, when asked about their criteria in hiring a new designer, practitioners might think of the interview process and focus on the person rather than the portfolio.

Nonetheless, designers recognized the creative attributes when defining design creativity, with an exception that Thai practitioners did not refer to technical merit in their concepts. This suggests that although Thai designers considered technical merit when assessing creative portfolios, they may perceive this aspect as independent from the overall concept of creativity. Since specialists typically perform technical work for Thai firms, this group of designers might consider abilities to design originally, appropriately, and aesthetically more important than technical skills. Likewise, Hokanson (2010) discussed creativity in interior design by explicitly discussing qualities of novelty, appropriateness, and aesthetics, while implicitly reflecting technical skills:

[C]reativity is an essential element of any form of interior design. It addresses the functional aspects of design in making of the built environment; it exists within the aesthetics of the work, in challenging the cognitive and visual limits of the viewers; and it exists within the very process of interior design practice, in being inventive in the way the work is done. (p. 20)

In addition, the findings reveal that both Thai and U.S. practitioners recognized novelty and appropriateness more than aesthetic appeal and technical merit in their

creativity definitions. This endorses the universal consensus of creativity, involving novelty and appropriateness as primary components (e.g., Averill, 2005; Boden, 1999; Mayer, 1999). Even though technical and aesthetic merits appeared less important, these aspects still played essential parts in determining creativity in design. However, practitioners may perceive the qualities of aesthetics and technical merit as the fundamentals of every design work rather than attributes of creative designs. The interview responses also suggest that both U.S. and Thai designers held similar conceptions of creativity when assessing levels of creativity in design portfolios.

Limitations

Gall et al. (2007) state that almost every research design contains inherent limitations to acknowledge. For the present dissertation study, the first constraint relates to the data collection period. The researcher gathered data in 2009, while the global recession starting in 2007, still remained. Since at that time the United States had already reached the low of the recession, a number of design projects had been cancelled or put on hold. As a result, many designers in the country became less active and more interested in projects in other countries than usual. In Thailand, the economy was just starting to slow down, so designers tended to focus on their existing projects more seriously than normal in order to maintain their businesses. These non-normative events affected the participation of designers from the two countries. U.S. practitioners seemed more enthusiastic to be involved and perceived the sample of Thai portfolios as more interesting than did Thai designers.

Other limitations regard the research methodology. The researcher designed the study procedure as similar to the actual hiring process as possible. However, it was not feasible to set up interviews between designers and students who created the portfolios

used in this study. The portfolio assessment without the applicant presentation could misrepresent practitioners' employment decisions in reality. Twenty-five percent of the designer participants ($n = 9$) also brought up this incomplete process as follows:

The other half of the interview is the person. That person is missing today. I can only see the portfolio....Without the person there to explain what they were trying to do, you know, you're not even sure the images are theirs....So you do need to have a sense of the person whose portfolio is being reviewed, that it's actually their work. (US-13)

I would like the person to come in and present his portfolio because right now these were just the portfolios with no presenters and no explanations behind the thought process. Sometimes I quickly skimmed through and gave some portfolios lower scores because I didn't understand them. But in fact their creators might be good at presenting their work. (TH-20)

Furthermore, the perceived range of creativity levels in the portfolios could limit the generalizability of the results. The pilot study findings affirmed a range in quality of the chosen portfolios; ratings ranging from 1.50 to 6.50 on a 7-point scale characterized poor-, average-, and excellent-creative categories. However, giving scores from 3.55 to 5.44, designer participants detected average- and relatively high-creative groups.

Although only one practitioner mentioned this issue, his comment is worth considering: "I don't think there's a great variance between one portfolio and the next....There's definitely a variance in the range on this table, but it's not a 1 to 100 variance. It's like 40 to 60" (US-15). Therefore, the study results may not be applicable to portfolios with low or very high creativity.

Besides, the portfolios collected from the single interior design program may not fully represent entry-level portfolios in general. About 17% of the designers ($n = 6$) remarked on the related styles of the portfolios. "Their works are similar in style. They are not exactly the same, but since they are from the same class, they try to do everything similarly" (TH-02). "I feel like all these students were thinking about living in a

movie, and there was no one here that was kind of exploring more simple, practical, down-to-earth themes" (US-07). More importantly, 36% of the designers ($n = 13$) noted that the portfolios overemphasized the students' computer skills, while limiting hand sketching, which remains a vital skill in the design field. Even though the similarity could help control the portfolio pool, these portfolios may not completely reflect judgments of portfolios showcasing a variety of styles.

Another limitation concerns the judging process itself. As Amabile (1996) states, judge exhaustion during a long evaluation process could threaten inter-judge reliability. To maintain the proper number of reviewed portfolios and prevent judges' fatigue, the researcher created an abridged version of the portfolios. After the assessment, a few practitioners asked whether the sample contained the complete portfolios. Although the range of work and consistency of the portfolios were similar to the full versions, the results may not exactly mirror an actual review of the complete portfolios. Nonetheless, 22% of the practitioners ($n = 8$) noted that it is difficult to review the 12 portfolios in one setting. "The real evaluation process would require more time and consideration...Thus, the more projects in this review would have been worse because they would require more time" (TH-08). "I think maybe 12 projects are a lot too many....and I noticed my scores started going down as I went through, maybe just because I was tired of looking at them" (US-07). Ideally, having more time to assess a smaller sample of complete portfolios would provide results closer to an actual review process. However, an appropriate sample size of portfolios is also important to the study validity.

A final limitation appears inherent to a study of creativity across cultures. Many scholars have indicated the limited body of creativity knowledge beyond the Western

boundary (e.g., Kim, 2007; Saengpanya, 2005). Specific to the present study, the lack of literature on Thai creativity limits the data analysis and discussion. Further, due to a paucity of creativity research outside the West, cross-cultural creativity studies have mostly relied on Western views and theories, which could cause cultural preconceptions (Lau et al., 2004a; Westwood & Low, 2003). The researcher designed this dissertation study based on the Western theoretical models because Eastern research perspectives on creativity are yet unclear. Trying to eliminate cultural biases, the researcher involved contributions of Thai experts in the data collection and analysis as well as cautiously interpreted findings. However, uncontrolled cultural factors could affect the results. For example, a few Thai designers seemed to devalue evidence-based research in design; this attitude could negatively impact their judgments and interview responses.

Directions for Future Research

Findings from the current dissertation research establish a path for future work on the evaluation of creativity in entry-level design portfolios. This study provides evidence supporting domain-specific creativity, the universal perception of creativity in interior design, as well as the importance of persuasion in design creativity. However, we could not make wide generalizations based on only participants from the two cultures, but should further study and examine the findings. Replicating this study and expanding a sample of participants from several countries will help prove whether the assessment, attributes, and concept of creativity in interior design are universal or not.

Given the judge exhaustion and the deficiency of information to rate appropriate design solutions in each portfolio, future research should employ fewer portfolios while presenting more descriptive content of the portfolios. A critical feedback from designers involved in this study is that “it is hard to do [the evaluation] in this short period of time,

especially this many" (US-09). It is also difficult for practitioners to devote more than one hour to the study procedure. Thus, decreasing the number of portfolios and using full portfolios will allow designer participants to understand the background of projects in each portfolio better and to judge how well those projects were solved more precisely.

Another suggestion stems from the assumption that Thai designers' recognized that the sample of portfolios came from Thailand. Hence, it will be interesting for future research to utilize both Thai and U.S. portfolios in the assessment. By doing so, we will be able to determine whether designers' awareness of portfolios from their respective cultures affects their perceptions and evaluations of creativity in the portfolios. Further, regarding culture as a market differentiating factor, future research may use a sample of portfolios or interior design projects collected from diverse nations. It will be fascinating to see whether practitioner judges can distinguish cultural variations in the sample, and how the variations affect designers' judgments.

An actual hiring process involves assessments of portfolios and job candidates. Given the limitation of not including the person in the hiring process, future research may utilize a sample of video clips showing portfolios with applicant presentations. This will increase validity of a study in reflecting employment in the field. Moreover, involving the applicant presentation in the evaluation will offer an opportunity to further explore the role of persuasion in design creativity. Judges will be able to assess a candidate's personal characteristics, communication skills, and potential to work and fit in their firms. It will be fascinating to see whether these factors affect overall creativity and hiring potential perceived by practitioner judges.

A final recommendation is to replicate and expand this study by recruiting design students, educators, and practitioners as judges. These stakeholders all participate in an actual portfolio review. Students create their entry-level portfolios to showcase their best work from educational experiences and their potential for future achievement. Educators guide the students to develop original and meaningful work. In the hiring process, practitioners review the portfolios to assess the students' skill and thought process. Previous literature on the evaluation of creativity in design has shown that groups of judges sometimes hold different views. Barnard (1992) found that designers and educators showed consensus in their judgments of creative interior design projects, but designers associated creativity with functionality more than educators, who rather related creativity to aesthetics. Similarly, Casakin and Kreitler (2008) revealed that, in evaluations of creative design solutions, skilled architects emphasized innovative qualities, while design students focused more on functional aspects of design solutions. Thus, it will be fascinating to involve these judges in future research to discover similarities and/or differences among their perceived levels of creativity in portfolios.

Conclusions and Implications

This dissertation study explored discipline-specific creativity across cultures by comparing Thai and U.S. design practitioners' assessments of entry-level portfolios and perceptions of creativity in the context of interior design. The research questions were basically addressed: what do practitioners consider to be creative in portfolios, how do practitioners define design creativity, and how do cultural influences impact the assessment of creative portfolios and the definition of creativity?

The study findings support the discipline specificity and universal perception of creativity in interior design and also suggest the importance of persuasion in design

creativity. Thai and U.S. designers both recognized novelty, appropriateness, technical merit, and aesthetic appeal as indicating overall creativity in portfolios. The interview responses also affirmed the relationship between the creative dimensions and overall creativity, while stressing that the dimensions did not stand alone, but were interrelated along with other discipline-specific criteria. More importantly, practitioners confirmed that creative portfolios could enhance applicants' potential to be called for an interview or even hired. In addition to the portfolios, work capability, communication skills, and personal characteristics of the applicants also weighed into practitioners' decisions. Endorsing the general consensus, designers' concepts of creativity generally involved novelty and appropriateness, followed by aesthetic appeal, technical merit, and other domain-relevant aspects, such as design recognition and organization. Since the creative dimensions appeared significant in the assessment of creative portfolios and definition of design creativity, delineations of these attributes should be presented:

Novelty: This study supports the universal, leading role of novelty in defining creativity in design works. Since this quality is easy to notice, designer participants had high consensus in their judgments and viewed it as a primary criterion when assessing creativity. Perhaps, they viewed novelty synonymously with creativity. A portfolio with novelty could attract attention from practitioners in the first place, though the other criteria also play essential parts in the hiring process.

Appropriateness: Designers also recognized appropriateness as an important criterion in indicating creativity in design. This supports a premise that a creative design should not only differ from others, but also needs to solve its problems and serve its functions well. Compared to the other dimensions, appropriateness appeared most

difficult for designer judges to assess. This may be due to the time constraint and insufficient content of the portfolios. Further, culture probably played a part in assessing appropriate design solutions. U.S. designers had a harder time than Thai practitioners to evaluate design works from Thailand.

Technical merit: Practitioners saw technical merit as another essential aspect in judging portfolios. This supports domain-relevant skills in creativity. Similar to novelty, designers simply assessed technical merit in the portfolios and showed high consensus in their judgments. However, when making hiring decisions and defining creativity, Thai designers recognized this aspect less than U.S. designers did. This could be due to a cultural variation regarding professional responsibilities in Thai and U.S. design firms.

Aesthetic appeal: Similar to technical merit, when evaluating creative design works and describing creativity, designers considered aesthetic merit as a discipline-relevant consideration. Thai practitioners agreed on the aesthetic value of the portfolios and cited the aspect in their creativity definitions more than U.S. designers. Similar to appropriateness, the results may relate to the influence of culture on design styles in each country. This could explain why aesthetics appeared complex for U.S. practitioners, who were not familiar with the Thai portfolios, to assess.

This dissertation study offers an insight into what practitioners expect in new hires through the assessment of creativity in entry-level portfolios. Due to the universal perception of creativity found in the present research, implications can benefit both Thai and U.S. design educators and students. Educators could emphasize creativity and its attributes: novelty, appropriateness, technical merit, and aesthetic appeal in their studio courses and curriculum to prepare students for practitioner expectations. They may

structure design problems to address creativity and its dimensions as well as include them in criteria to evaluate the solutions. Importantly, educators should also guide students to weigh the dimensions in each design project properly.

Specific to developing portfolios, educators could encourage students to produce portfolios that are unique and explicable while also showcasing their skills in solving design problems originally, appropriately, and aesthetically. Any one of the creative dimensions cannot fully influence overall creativity of a portfolio. Students need to show all the aspects in their works. They should also present a variety of their technical skills, such as using computer programs and hand sketching, in their portfolios. As the study findings confirm, design practitioners viewed a creative design product as representing a creative process behind it, and they would like to see the creative process behind creative works in a portfolio. In addition to having a creative portfolio, students could enhance their employment possibility by improving their work capability, communication skills, and overall personality.

Design, as a creative profession, requires people with creative talent to create works that challenge a norm and, at the same time, suit a social system. Design, as a universal community, has its own “design” language and standards. Judging creative design works and selecting creative designers involve several aspects; nonetheless, experienced designers seem to share some similar considerations, including but not limited to novelty, appropriateness, technical merit, and aesthetic appeal. Although other factors still affect designers’ perceptions of creativity, these attributes can be guidelines for educators to train and for students to develop creativity in order to meet the practitioner expectation.

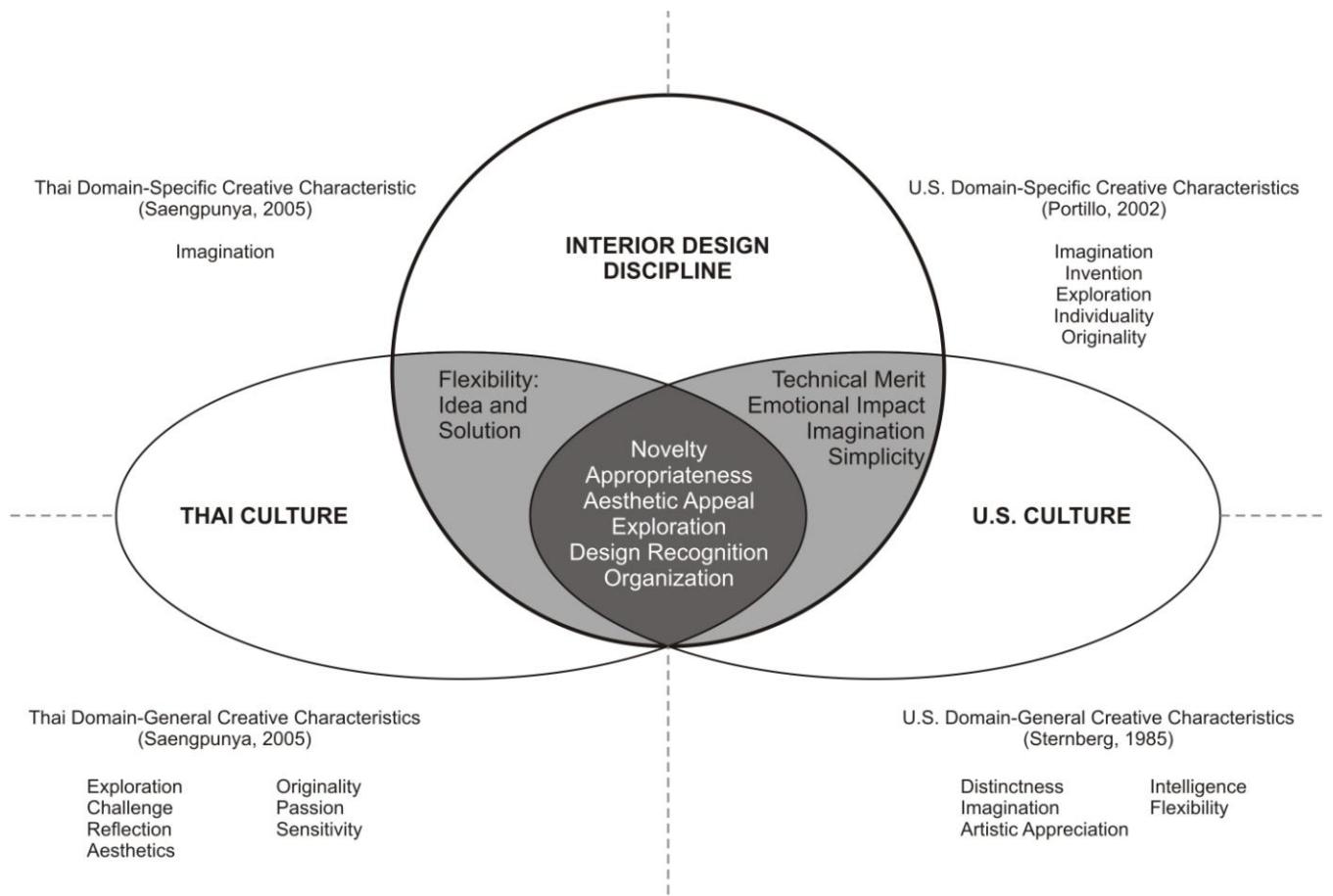


Figure 5-1. Summary of creative characteristics by domain

APPENDIX A

PARTICIPATION REQUEST LETTER



College of Design, Construction and Planning
Department of Interior Design

336 Architecture Building
PO Box 115705
Gainesville, FL 32611-5705
352-392-0252
352-392-7266 Fax

May 18, 2009

Designer's name

Firm and address

Dear

This is Siriporn Kbnithikulwong, a doctoral student at the University of Florida conducting a research study on interior design that will help design educators and students. I am currently studying what design professionals look for in entry-level digital portfolios. As you know, the design portfolio is widely used as a tool for assessing new designers' talents and skills as well as their potential for future success. However, many graduating students who are entering the professional market are not sure how to best present their design skills through their portfolios. The purpose of this study is to determine what recognized design professionals consider important when assessing the portfolios of graduating interior design students.

Because of your expertise, I would like to ask for your help. I would like you to **review and evaluate 12 interior design digital portfolios and discuss your evaluation process with me**. It would be great if you also could recommend other more senior members of your firm with experience in reviewing portfolios and making hiring decisions to also participate in this study. This process should take no longer than about **one hour**. Based on your schedule, I can travel to your firm on a day **towards the end of June**. In the next few days, I will call you to discuss your possible participation in this study and answer any questions you may have. Hopefully, we can schedule a convenient time for you to complete the study.

Dr. Margaret Portillo is the professor who is supervising this dissertation research with me. She is the department Chair and a member of the University of Florida doctoral research faculty. Dr. Portillo and I plan to present the findings of this study at a national conference of Interior Design Educators Council next year. The goal is to provide design educators and students a better understanding of what design professionals look for in graduating interior design students. If Dr. Portillo or I can answer any questions for you, please feel free to contact either one of us.

Sincerely yours,

A handwritten signature in black ink that reads "siriporn".

Siriporn Kbnithikulwong, Doctoral Student

A decorative horizontal border consisting of a repeating pattern of small, colorful flowers and leaves.

A handwritten signature in black ink that appears to read "MPC".

Margaret Portillo, Ph.D.
Associate Professor and Chair

A decorative horizontal border consisting of a repeating pattern of small, colorful flowers and leaves.



College of Design, Construction and Planning
Department of Interior Design

วันที่ 6 ตุลาคม พ.ศ. 2552

เรื่อง ขอความร่วมมือในงานวิจัยวิทยานิพนธ์ระดับปริญญาเอก

ถึง

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เรียนคุณ

ดิฉัน สิริพร กอบนิธิกุลวงศ์ นักศึกษาระดับปริญญาเอก สาขาวิชาการออกแบบสถาปัตยกรรมภายใน ณ University of Florida ประเทศสหรัฐอเมริกา ขณะนี้ดิฉันได้ทำวิทยานิพนธ์ศึกษาความเห็นของนักออกแบบและสถาปนิกต่อแบบรูบรวมผลงานการออกแบบ (Portfolio) ของนักศึกษาที่เพิ่งสำเร็จการศึกษา เพื่อที่จะศึกษาปัจจัยต่างๆ ที่นักออกแบบและสถาปนิกที่มีประสบการณ์เห็นว่าสำคัญและจำเป็นในการประเมินผลและตัดสินแบบรูบรวมผลงานการออกแบบของนักศึกษา

เนื่องด้วยชื่อเสียงและความสำเร็จของบริษัทของท่านที่ได้รับการยอมรับในวงการการออกแบบ ดิฉันจึงได้ขอความร่วมมือจากท่าน (และกรุณาแนะนำนักออกแบบหรือสถาปนิกผู้มีประสบการณ์ในการประเมินแบบรูบรวมผลงานการออกแบบในบริษัทของท่าน) เข้าร่วมการประเมินผลแบบรูบรวมผลงานของนักศึกษาสาขาวิชาการออกแบบสถาปัตยกรรมภายในที่เพิ่งสำเร็จการศึกษาจำนวน 12 ผลงาน หลังจากนั้นจะมีการสัมภาษณ์ในค่าตอบแทนที่เกี่ยวข้องกับการประเมินผลและผลงานของนักศึกษา ขั้นตอนทั้งหมดจะใช้เวลาประมาณ 1 ชั่วโมง ดิฉันจะทำการติดต่อท่านทางโทรศัพท์ภายในสัปดาห์หน้าที่ท่านได้รับจดหมายนี้ หากท่านกรุณาให้ความร่วมมือ ดิฉันจะขอ拿出เวลาสำหรับงานวิจัยดังกล่าวภายใต้เงื่อนไขด้านพฤติกรรมนี้

งานวิจัยวิทยานิพนธ์ชิ้นนี้จะเป็นประโยชน์ต่อวงการการศึกษาด้านการออกแบบ เนื่องด้วยวัตถุประสงค์หลักของงานวิจัยชิ้นนี้จะเสนอแนวทางแก้อาจารย์ในการเขียน และแก่นักศึกษาในการสร้างสรรค์และพัฒนาผลงานการออกแบบต่อไป หากท่านมีค่าตอบแทนที่เกี่ยวข้องกับงานวิจัยชิ้นนี้ กรุณาติดต่อดิฉัน [REDACTED] หรือ Dr. Margaret Portillo [REDACTED] ผู้ซึ่งเป็นอาจารย์ที่ปรึกษางานวิจัยชิ้นนี้

ดิฉันหวังว่าจะได้รับความร่วมมือจากท่าน และขอขอบคุณเป็นอย่างยิ่งมา ณ โอกาสนี้

ขอแสดงความนับถือ

Margaret Portillo, Ph.D., IDEC
Professor and Chair, Department of Interior Design

[Signature]

สิริพร กอบนิธิกุลวงศ์

Doctoral Student, Department of Interior Design

The Foundation for The Gator Nation

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APPENDIX B
PORTFOLIO ASSESSMENT INSTRUMENT

Portfolio Assessment Form

Judge # _____ Portfolio: A- _____

Dimensions	Descriptions	Low	Average			High		
		1	2	3	4	5	6	7
Novelty:	The portfolio projects appear unique.							
Appropriateness:	The portfolio projects show appropriate design solutions.	1	2	3	4	5	6	7
Technical Merit:	The portfolio projects show technical skill.	1	2	3	4	5	6	7
Aesthetic Appeal:	The portfolio projects are compositionally pleasing.	1	2	3	4	5	6	7
Overall Creativity:	The overall portfolio is creative.	1	2	3	4	5	6	7
Hiring Potential:	Would this portfolio enable the person who created it get an interview in your firm?	1	2	3	4	5	6	7

แบบฟอร์มการประเมินผลงานนักศึกษา

Judge #

Portfolio: A-

หัวข้อในการตัดสิน	ค่าอธิบาย	น้อยที่สุด	ปานกลาง	มากที่สุด
ความเปลกใหม่:	ผลงานแสดงความเปลกใหม่ แตกต่างจากผลงานอื่น	1	2	3
ความเหมาะสม:	ผลงานแสดงความเหมาะสมในการออกแบบ	4	5	6
คุณภาพทางเทคนิค:	ผลงานถูกออกแบบและสร้างสรรค์ด้วยเทคนิคที่ดี	7	1	2
ความสวยงาม:	ผลงานแสดงความสวยงาม และน่าดึงดูดใจ	3	4	5
ความคิดสร้างสรรค์:	ผลงานโดยรวมแสดงความคิดสร้างสรรค์	6	7	1
โอกาสที่จะถูกจ้างงาน:	ความเป็นไปได้ที่ผู้ออกแบบผลงานจะได้รับการเรียก สัมภาษณ์เพื่อการจ้างงานจากบริษัทของท่าน	2	3	4

APPENDIX C INTERVIEW QUESTIONS

1. Which portfolio do you consider as the strongest overall? Why?
2. Which portfolio do you consider as the weakest overall? Why?
3. What criteria did you consider to be the most important when reviewing the portfolios?
4. How important is **creativity** in an entry level design portfolio?
5. Does showing a creative portfolio influence the ability to be hired as an entry level designer in your firm?
6. Besides creativity, what aspects influence being hired as an entry-level designer?
7. In general, how did the digital portfolios you just reviewed compare to entry-level portfolios that you see at your firm?
8. What did you think of the evaluation process for reviewing the digital portfolios?
9. What do you remember as the defining qualities in the most outstanding entry-level portfolio that you have seen?
10. Is there anything else that you would like to add?

1. แบบรวมผลงานนักศึกษาชั้นใด ที่ท่านคิดว่าดูดีและมีคุณภาพมากที่สุด กรุณาให้เหตุผล
2. แบบรวมผลงานนักศึกษาชั้นใด ที่ท่านคิดว่าดูดีและมีคุณภาพน้อยที่สุด กรุณาให้เหตุผล
3. ปัจจัยใดบ้าง ที่ท่านพิจารณาว่าสำคัญที่สุดในการประเมินแบบรวมผลงานนักศึกษา
4. ท่านคิดว่าความคิดสร้างสรรค์มีความสำคัญอย่างไร ต่อแบบรวมรวมผลงานการออกแบบของนักศึกษาที่เพิ่งจบการศึกษาหรือนักออกแบบรุ่นใหม่
5. ท่านคิดว่าแบบรวมรวมผลงานที่แสดงความคิดสร้างสรรค์ที่ดี จะมีผลอย่างไรต่อโอกาสที่จะ ถูกเรียก สัมภาษณ์หรือจ้างงาน
6. นอกจากความคิดสร้างสรรค์ ปัจจัยใดบ้างในแบบรวมรวมผลงานที่ท่านเห็นว่ามีความสำคัญต่อ โอกาสที่จะถูกเรียกสัมภาษณ์ หรือจ้างงานของนักศึกษาที่เพิ่งจบการศึกษา
7. โดยทั่วไป แบบรวมรวมผลงานทั้ง12ผลงานนี้มีคุณภาพระดับใด เมื่อเปรียบเทียบกับแบบรวม รวม ผลงานอื่นๆ ที่ท่านได้เห็นหรือทำการประเมิน
8. ท่านมีความคิดเห็นอย่างไรต่อการประเมินผลงานนักศึกษาครั้งนี้
9. กรุณารายรายแบบรวมรวมผลงานการออกแบบที่ท่านได้เคยเห็นมา และรู้สึกว่ามีความโดดเด่นและ ประทับใจท่านที่สุด
10. กรุณาให้ข้อคิดเห็นและคำแนะนำอื่นๆ

APPENDIX D
QUESTIONNAIRE FOR JUDGES

1. What is your current formal position title? _____
 2. Your academic background/degree(s) _____
 3. School(s) where you obtained your design degree(s)
 4. How many years have you practiced design? _____ years
 5. Do you focus on interior design? _____
 6. Do you have a design specialty? _____
 7. Briefly overview the type of work your firm does.

 8. How big is your firm? _____ employees
 9. How many entry-level designers do you (or your firm) typically hire a year?
_____ designers
 10. How many years have you reviewed portfolios? _____ years
 11. How many portfolios do you review a year (approximately)? _____ portfolios
-
1. กรุณาระบุตำแหน่งหน้าที่ของท่านในบริษัท _____
 2. กรุณาระบุระดับการศึกษาของท่าน _____
 3. กรุณาระบุชื่อคณะและสถาบันการศึกษาที่ท่านได้จบการศึกษาดังกล่าว _____
 4. กรุณาระบุจำนวนปีที่ท่านได้ทำงานทางด้านสาขาวิชาออกแบบ _____ ปี
 5. ท่านทำงานเกี่ยวกับการออกแบบหรือตกแต่งสถาปัตยกรรมภายในใช่หรือไม่ _____
 6. กรุณาระบุลักษณะงานตามความเชี่ยวชาญของท่าน (Design Specialty) _____
 7. กรุณาระบุรายรูปแบบงานออกแบบและความเชี่ยวชาญของบริษัทท่าน โดยย่อ

 8. บริษัทของท่านมีจำนวนพนักงานทั้งสิ้น (โดยประมาณ) _____ คน
 9. โดยเฉลี่ย บริษัทของท่านจะทำการจ้างนักออกแบบหรือสถาปนิกที่เพิ่งจบการศึกษาทั้งสิ้น _____ คน / ปี
 10. กรุณาระบุจำนวนปีที่ท่านได้ทำการประเมินแบบรวมรวมผลงานการออกแบบ (เพื่อการจ้างงานในบริษัทของท่าน) _____ ปี
 11. ในแต่ละปี ท่านมีโอกาสประเมินแบบรวมรวมผลงานการออกแบบ ประมาณ _____ ผลงาน / ปี

APPENDIX E UFIRB APPROVAL



PO Box 112250
Gainesville, FL 32611-2250
352-392-0433 (Phone)
352-392-9234 (Fax)
irb2@ufl.edu

DATE: May 14, 2009

TO: Siriporn Kbnithikulwong

FROM: Ira S. Fischler, PhD; Chair *[Signature]*
University of Florida
Institutional Review Board 02

SUBJECT: Approval of Protocol #2009-U-570
Thai Creativity in Interior Design: A Cross-Cultural Examination of Practitioner Evaluations on Creative Dimensions in Entry-Level Portfolios

SPONSOR: None

I am pleased to advise you that the University of Florida Institutional Review Board has recommended approval of this protocol. Based on its review, the UFIRB determined that this research presents no more than minimal risk to participants. Your protocol was approved as an expedited study under category 7: *Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.*

Given this status, it is essential that you obtain signed documentation of informed consent from each participant. Enclosed is the dated, IRB-approved informed consent to be used when recruiting participants for the research. If you wish to make any changes to this protocol, *including the need to increase the number of participants authorized*, you must disclose your plans before you implement them so that the Board can assess their impact on your protocol. In addition, you must report to the Board any unexpected complications that affect your participants.

It is essential that each of your participants sign a copy of your approved informed consent that bears the IRB approval stamp and expiration date.

If you have not completed this protocol by May 14, 2010, please telephone our office (392-0433), and we will discuss the renewal process with you. It is important that you keep your Department Chair informed about the status of this research protocol.

ISF:dl



College of Design, Construction and Planning
Department of Interior Design

336 Architecture Building
PO Box 115705
Gainesville, FL 32611-5705
352-392-0252
352-392-7266 Fax

Informed Consent Statement

Please read this consent document carefully before you decide to participate in this procedure.

Purpose of the research:

The primary purpose of this research is to explore how design practitioners assess dimensions in entry-level interior design portfolios.

What you will be asked to do in the study:

If you agree to participate, you will be asked to evaluate a sample of entry-level interior design digital portfolios. A set of the evaluation instruction and forms will be given to you before the procedure starts.

The evaluation process will be divided into four parts.

- First, you will watch a programmed slide show of the portfolios.
- Second, you will assess each portfolio based on given dimensions on the evaluation form.
- Third, you will be asked to rank four important dimensions in the portfolio sample.
- Fourth, after completing the portfolio evaluation, you will be interviewed on six open-ended questions to better understand how you assessed the design portfolios.

Time required: One hour maximum

Risks and benefits:

There are no known physical or psychological risks involved in this study. I do not anticipate that you will benefit directly by participating in this procedure.

Compensation:

You will not be paid any compensation for participating in this study; however, I will send you a short summary of the results of the study.

Approved by
University of Florida
Institutional Review Board 02
Protocol # 2009-U-570
For Use Through 05/14/2010

The Foundation for The Gator Nation

An Equal Opportunity Institution

Confidentiality:

Your identity will be kept confidential to the extent provided by law. Your information and data will be assigned a code number. The key to this code will be kept in a file that is accessible only by the researcher, and your identity will not be revealed in the final manuscript.

Voluntary participation:

Your participation in this procedure is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study:

You are free to withdraw your consent to participate and may discontinue your participation in this study at any time without consequence.

Whom to contact if you have questions about the study:

Dr. Margaret Portillo, PhD

Interior Design Department, University of Florida, Florida, USA

Email address: [REDACTED]

Phone number: [REDACTED]

Siriporn Kornithikulwong, Doctoral Student

Interior Design Department, University of Florida, Florida, USA

Email address: [REDACTED]

Phone number: [REDACTED]

Whom to contact about your rights as a research participant in the study:

UFIRB Office, Box 112250, University of Florida

Gainesville, FL 32611-2259

Phone number (352) 392-0433

Agreement:

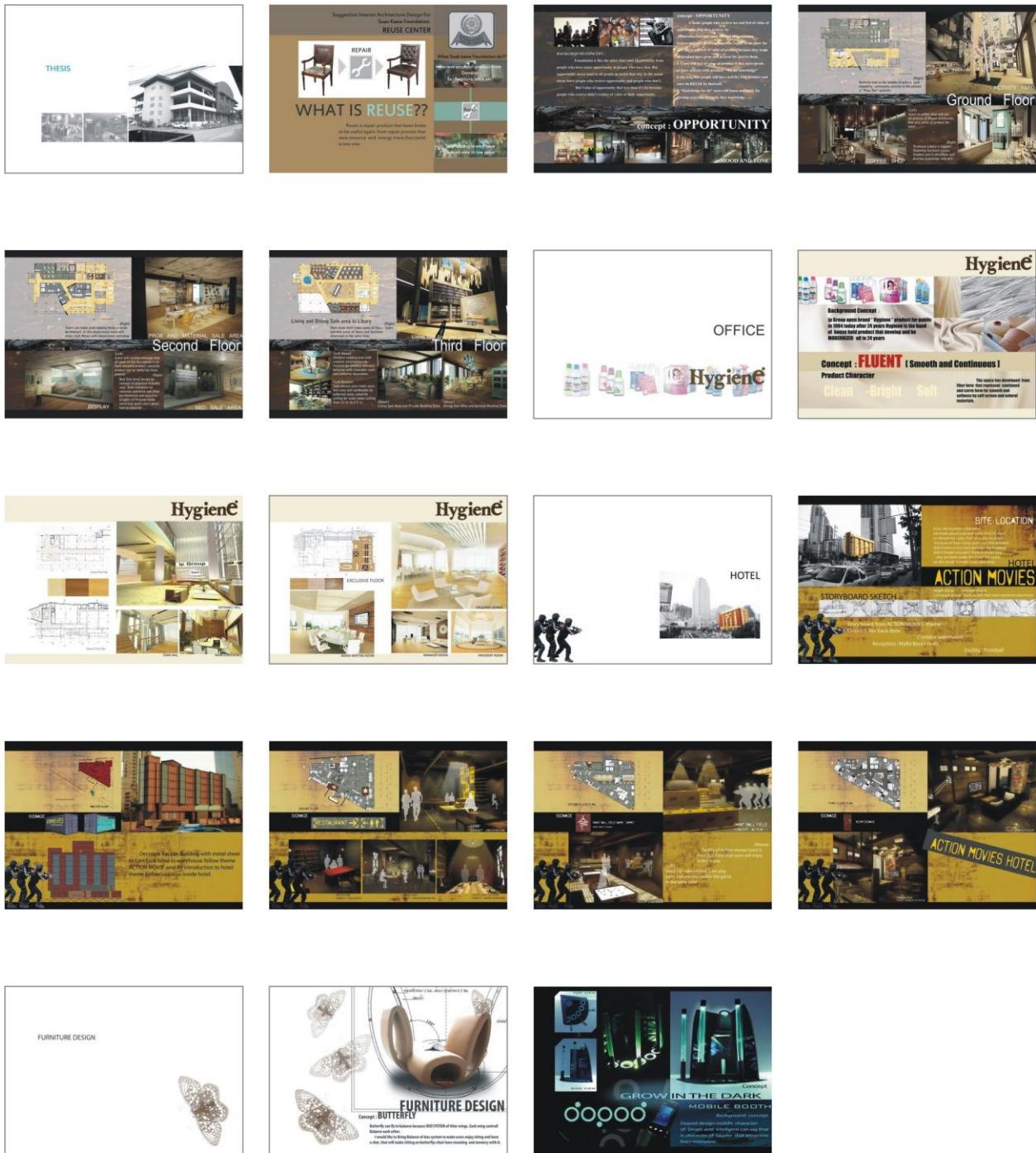
I have read the procedure described above. I voluntarily agree to participate in the procedure and I have received a copy of this description.

Participant: _____ Date: _____

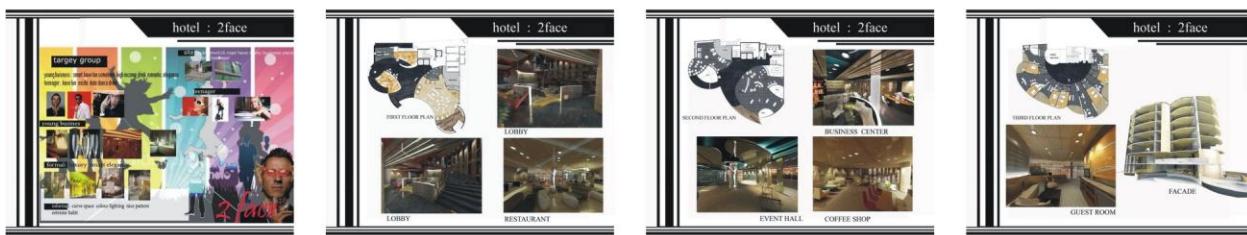
Investigator: _____ Date: _____

Approved by
University of Florida
Institutional Review Board 02
Protocol # 2009-U-570
For Use Through 05/14/2010

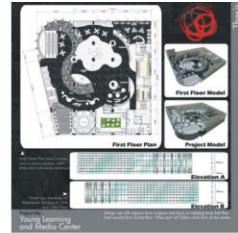
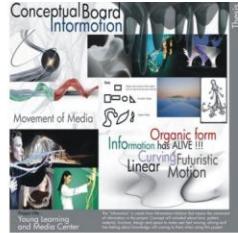
APPENDIX F EXAMPLES OF PORTFOLIOS



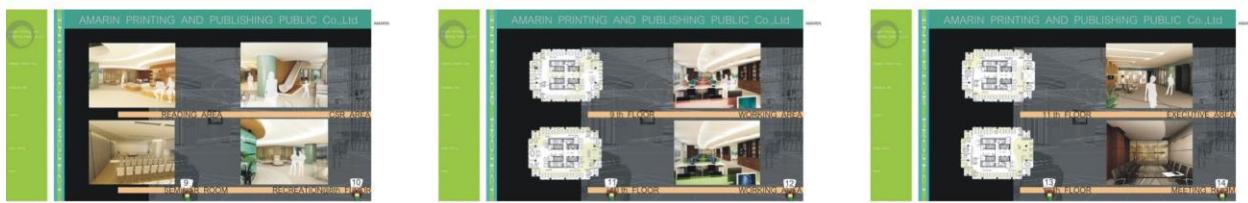
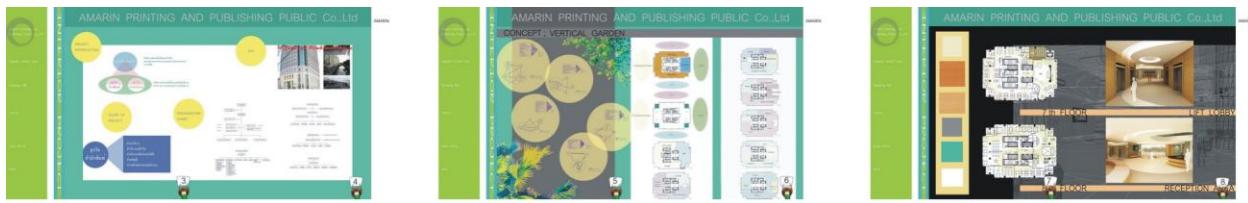
High Creative: Portfolio 02



High Creative: Portfolio 07



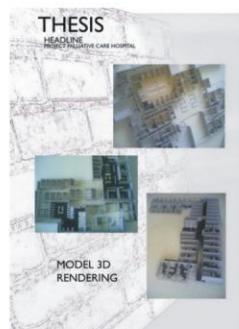
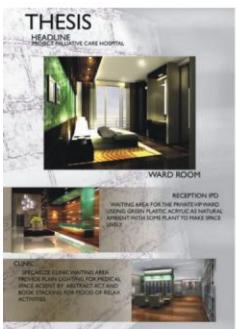
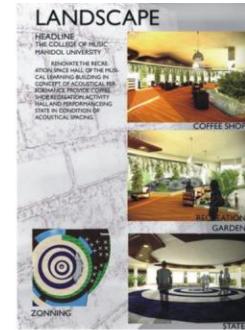
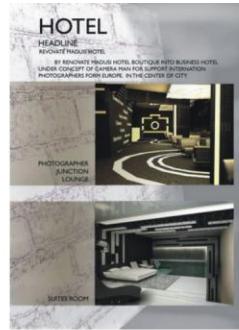
High Creative: Portfolio 11



Low Creative: Portfolio 04



Low Creative: Portfolio 09



Low Creative: Portfolio 12

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BIOGRAPHICAL SKETCH

Siriporn Kohnithikulwong received her Bachelor of Architecture (major in interior architecture) with honors from Chulalongkorn University, Thailand, in 2003. Upon graduation, she practiced interior design and taught as a full-time instructor in the Department of Interior Architecture at Thammasat University. In 2005, she earned a scholarship from the Royal Thai Government for graduate studies and was admitted to the graduate program in Interior Design at the University of Florida. She completed her Master of Interior Design in 2007 and enrolled in the Ph.D. program in the College of Design, Construction and Planning. During her graduate years, she conducted studies on applied creativity in interior design and was also a teaching assistant for interior design theories and graphic communications courses. In addition, she created graphic illustrations for *Color Planning for Interiors*, a published book of Dr. Margaret Portillo, Chair of the Interior Design Department, University of Florida. Upon receiving her Doctor of Philosophy, she plans to return to Thailand and resume her work as a faculty member in the Department of Interior Architecture, Faculty of Architecture and Planning, Thammasat University.