# Dimensions of Creativity in Interior Architecture: How Do American Practitioners Evaluate Thai Entry-Level Portfolios?
# ปัจจัยของความคิดสร้างสรรค์ในงานสถาปัตยกรรมภายใน นักวิชาชีพอเมริกันประเมินแบบรวบรวมผลงานของนักศึกษาไทยอย่างไร

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**Abstract**

Creativity is highly valued and necessary for problem solving in interior architectural design. However, there is a paucity of empirical research on creativity in the context of interior architectural education and practice. One way to study creativity in this area is through entry-level portfolios that play an important role in the hiring process. Further, regarding globalization, examining creative design portfolios based on perspectives of experts from a different culture can offer guidelines to improve curriculums to be more innovative and universal. The goal of the present study is to examine American practitioner evaluations of creativity in Thai interior architecture graduates' portfolios and address the following questions. (1) What criteria do practitioners use when assessing portfolios? (2) What do practitioners consider creative in portfolios? (3) Does perceived creativity impact hiring decisions? To answer these questions, this study employed a mixed-methods research strategy. The methodology for quantitatively assessing portfolios was based on the agreement of practitioners, as expert judges, in evaluating levels of creativity in portfolios. Further, semi-structured interviews with the judges contributed to the qualitative understanding of portfolio assessments and creativity. Sixteen American senior-level practitioners based in Atlanta were asked to individually assess a sample of twelve Thai digital portfolios in six categories: novelty, appropriateness, technical merit, aesthetic appeal, overall creativity, and hiring potential. After the portfolio assessment, the practitioners were asked to elaborate on their own criteria used to evaluate portfolios and creativity. The quantitative findings from the portfolio evaluation showed a significant positive influence of perceived creativity in portfolios on hiring potential ($r = .85$, $r$ squared $= .72$, $p < .01$). Supporting this, the qualitative results revealed that most practitioners considered creativity and technical skill as the two primary criteria guiding their portfolio assessments. In other words, practitioners viewed creativity expressed in portfolios as a good predictor of employability.

**บทคัดย่อ**

ความคิดสร้างสรรค์มีความสำคัญและจำเป็นอย่างยิ่งในการแก้ปัญหาการออกแบบงานสถาปัตยกรรมภายใน แม้จะเป็นเช่นนั้นงานวิจัยที่มุ่งเน้นเรื่องความคิดสร้างสรรค์ในวงการศึกษาและวิชาชีพสถาปัตยกรรมภายในยังมีจำนวนน้อยมาก หนทางหนึ่งที่เราสามารถศึกษาเรื่องความคิดสร้างสรรค์ในบริบทนี้ ก็คือการศึกษาแบบรวบรวมผลงานออกแบบของนักศึกษา ซึ่งมีความสำคัญมากในการสมัครงาน นอกจากนี้ หากคำนึงถึงกระแสโลกาภิวัฒน์ การศึกษาเรื่อง ความคิดสร้างสรรค์ในแบบรวบรวมผลงานจากมุมมองของผู้เชี่ยวชาญต่างประเทศ สามารถก่อให้เกิดประโยชน์ในการพัฒนาหลักสูตร การเรียนการสอนให้ทันสมัยและเป็นสากล ผลงานวิจัยชิ้นนี้มุ่งเน้นศึกษาการประเมินแบบรวบรวมผลงานของนักศึกษาไทยจากมุมมองของนักวิชาชีพชาวอเมริกัน อีกทั้งมุ่งเน้นที่จะตอบคำถามดังต่อไปนี้ 1. นักวิชาชีพใช้ข้อพิจารณาใดบ้างในการประเมินแบบรวบรวมผลงาน 2. ปัจจัยใดบ้างที่นักวิชาชีพเห็นว่าสื่อถึงความคิดสร้างสรรค์ในแบบรวบรวมผลงาน 3. ความคิดสร้างสรรค์ในแบบรวบรวมผลงานมีผลต่อการตัดสินใจจ้างงานของนักวิชาชีพหรือไม่ ผลงานวิจัยชิ้นนี้ใช้วิธีการเก็บข้อมูลแบบผสมทั้งเชิงปริมาณและเชิงคุณภาพ การเก็บข้อมูลเชิงปริมาณจากการประเมินแบบรวบรวมผลงานขึ้นอยู่กับความเห็นพ้องต้องกันของผู้ทำการประเมิน ซึ่งได้แก่นักวิชาชีพที่มีประสบการณ์ในวงการวิชาชีพสถาปัตยกรรมภายในเป็นอย่างสูง นอกจากนี้ ยังมีการสัมภาษณ์ผู้ทำการประเมินเพื่อเก็บข้อมูลเชิงปริมาณที่ก่อให้เกิดประโยชน์ต่อความเข้าใจในเรื่องการประเมินและความคิดสร้างสรรค์ นักวิชาชีพชาวอเมริกันสิบหกคน ซึ่งทำงานออกแบบในเมืองแอตแลนต้าแยกกันประเมินแบบรวบรวมผลงาน ตามหัวข้อดังนี้ ความแปลกใหม่ ความเหมาะสม คุณภาพทางเทคนิค ความสวยงาม ความคิดสร้างสรรค์ และโอกาสที่จะถูกจ้างงาน หลังจากทำการประเมินนักวิชาชีพเหล่านี้จะตอบคำถามที่เกี่ยวกับข้อพิจารณาในการประเมินผลแบบรวบรวมผลงานและความคิดสร้างสรรค์ในงานออกแบบ ผลการวิจัยเชิงปริมาณแสดงความสัมพันธ์ที่มีนัยสำคัญระหว่างความคิดสร้างสรรค์และโอกาสที่จะถูกจ้างงาน ($r = .85$, r squared = .72, $p < .01$) ผลการวิจัยเชิงคุณภาพสนับสนุนว่า ในขณะที่ทำการประเมินแบบรวบรวมผลงาน นักวิชาชีพส่วนใหญ่ให้ความสำคัญกับเรื่องความคิดสร้างสรรค์และคุณภาพทางเทคนิคเป็นหลัก ผลการวิจัยแสดงให้เห็นว่าความคิดสร้างสรรค์ที่แสดงออกในแบบรวบรวมผลงานสามารถเป็นตัวบ่งชี้โอกาสในการถูกจ้างงานได้

**Keywords (คำสำคัญ)**

Creativity (ความคิดสร้างสรรค์)

Creative Dimensions (ปัจจัยของความคิดสร้างสรรค์)

Evaluation (การประเมินผล)

Portfolio (แบบรวบรวมผลงานนักศึกษา)

Interior Architecture (สถาปัตยกรรมภายใน)

## 1. Research Background

Today, we are acutely aware that creativity plays a crucial part in our world. Organizations and governments have repeatedly identified the importance of creative ideas and processes in enhancing the innovation and productivity of their services, businesses, and national economies (Baldoni, 2010; Oliver & Jung-a, 2010; United Nations, 2008). For instance, the United Kingdom has developed a "creative economy" strategy to succeed in the global marketplace. Others, such as the United States, Australia, South Korea, and Thailand, are explicitly developing initiatives to harness creativity to promote their economic standing (Development of Creative Economy in different countries, 2009). Regarding the increasing emphasis on creativity worldwide, more information on creativeness in different disciplines and cultures is required.

Creativity is fundamental to the education and professional practice of design. Design education places an explicit premium on creative ability in the curriculum (Casakin & Kreitler, 2008; Nelson, 2010). For practitioners, design is also generally regarded as a highly creative profession, with innovation and originality both central to professional success (Lawson, 2006). Many countries now consider design as a creative industry that makes an essential contribution to their economic capability, and have called for research to provide a better understanding of creativity in design (Hokanson, 2010). According to Mooney (1963), creativity is a multi-faceted phenomenon demonstrated in products, processes, persons, and environments. Most researchers in the design field have focused their attention on creativity by studying the design process or design product (e.g., Casakin & Goldschmidt, 2000; Christiaans, 2002; Demirkan & Hasirci, 2009; Goldschmidt & Smolkov, 2006; Kokotovich & Purcell, 2000).

The present research examines creativity in entry-level interior design portfolios, which represent a design product within the context of interior design. The focus on design portfolios in this study broadly covers the form of interior design solutions, two-dimensional drawings, three-dimensional models, and digital and hand sketched images representing a range of media. Portfolios not only offer an excellent avenue to learn more about creativity in context, but can also be used to assess design creativity, ability, and skills as well (Castiglione, 1996). The portfolio also serves as a passport for students 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). Yet what do we know empirically about how designers evaluate portfolios and gauge their level of creativity?

## 2. Literature Review

A review of precedent reveals little research on the systematic study of portfolios or on creative works for that matter (Cho, 2007; Christiaans, 2002). A few existing studies on the evaluation of the portfolio or design product, however, are worth reviewing. Levins (2006) examined evaluations of entry-level interior design portfolios by interior designers and architects. Using Besemer and Treffinger's (1981) Creative Product Analysis Matrix (CPAM), she evaluated creativity in terms of novelty, resolution, and style. In addition to these three dimensions, the researcher inserted overall creativity and hiring potential to correlate the portfolio evaluation with its actual role in the hiring process. Levins utilized survey and

interview methods to collect data. Judges assessed each portfolio according to the given criteria using a quantifiable rating form, and then responded to open-ended questions to elaborate on their assessments. Overall creativity appeared most related to novelty. Furthermore, a highly creative portfolio was shown to be a strong factor in determining whether or not job applicants would be hired. Barnard (1992) also examined criteria relating to creativity. She adapted Amabile's (1983) criteria to assess the creativity, technical skills, and aesthetic aspects of interior design projects. She recruited design educators and practitioners in the assessment process. Her findings indicated that educators and practitioners gauged overall creativity similarly; however, they appeared to consider the creative dimensions differently. When analyzing the rankings of the two judging groups separately, Barnard found that educators evaluated creativity in relation to the artistic and aesthetic merits of a work, rather than its technical and functional aspects. Conversely, designers considered creativity primarily from a technical and functional perspective.

In a related study on art and creativity, Niu and Sternberg (2001) recruited a sample of American and Chinese judges to assess artworks created by American and Chinese undergraduate students based on creativity, likeability, appropriateness, and technical quality. The results showed that creativity appeared highly related to likeability. Evaluations of both groups did not indicate that judges favored products from their own culture over those from the other, thus suggesting no cultural biases in their 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. Similarly, Chen, Kasof, Himsel, and colleagues (2002) asked American and Chinese judges to assess drawings created by American and Chinese college students on creativity, uniqueness, technical quality, and likeability. The ratings of both judge groups were highly correlated for every criterion. In another cross-cultural study of creative products, Besemer and her colleagues (Besemer, 1998; Besemer & O'Quin, 1999) recruited Norwegian and American participants to assess the creativity levels of three chair designs. The researchers also suggested that evaluation of products in non-Western cultures would be interesting and could provide a better understanding of the assessment criteria.

### 3. Introduction to the Study

In this globalised planet, we are all interconnected through technology. Design products, including portfolios, have gone digital to "promote [a designer's] personal and professional work globally" (Linton, 2008, p. 93). Since design works are now shared and experienced across the world, it is essential to explore the common metric and potential cross-cultural differences in the assessment of design products. Therefore, digital design portfolios were chosen as the central focus of this research. The aim of this present study was to examine the role of different creative dimensions in American practitioner evaluation of design portfolios produced by Thai interior design students. Three main questions were addressed. (1) What criteria do design practitioners use when assessing portfolios? (2) What do design practitioners consider creative in portfolios? (3) Does perceived creativity impact hiring decisions? Responses to the research questions were anticipated to expand the body of knowledge on the understanding of applied creativity in interior design. Moreover, the findings could provide a better understanding of creativity and its attributes in entry-level interior design portfolios and propose useful recommendations for design educators who are guiding students in developing their own portfolios.

## 4. Methodology

To answer the questions, the present study employed systematic and field research methodology. Survey and semi-structured interview methods were consolidated into a portfolio assessment procedure. The methodology for assessing entry-level design portfolios drew on Amabile's (1983, 1996) Consensual Assessment Technique (CAT) involving the agreement of expert judges. 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. In the present study, sixteen experienced practitioners, as expert judges, independently evaluated the sample of design portfolios. After the portfolio evaluation, an interview was conducted with each judge to gain a qualitative understanding of their evaluation process.

The sample of design portfolios consisted of twelve digital portfolios collected from Thammasat University in Bangkok, which has one of the most well-established interior design programs in Thailand. The first phase of the pilot study was conducted to develop the portfolio sample. Twelve portfolios were chosen from a total of 23 portfolios in the graduating class of 2009. The authors and four Thai designers evaluated and sorted portfolios into groups exhibiting high (n = 4), medium (n = 4), and low creativity (n = 4). The second phase of the pilot test was conducted to verify the range of creativity, research instruments, and procedures. Two interior design educators with practical experience from an accredited university in the southeast region of the U.S. participated in this phase of the pilot test. When originally submitted, the selected portfolios were in different digital formats and included a varying range of projects. 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 the design specialties of the practitioner judges. All twelve portfolios were formatted and timed as a Microsoft PowerPoint slide show. To eliminate factors related to the sequential order and potential viewing fatigue, three randomized sets of the slide show were developed.

Research participants consisted of sixteen senior-level design practitioners from eight firms located in Atlanta. The professional scope of these firms was similar and included corporate, hospitality, residential, retail, education, healthcare, education, government, cultural, mixed use, and transit design services. All of the firms had received national and/or international design awards. Additionally, the researcher chose designer participants from each firm based on their position and responsibilities. Since this research involved portfolio evaluation, prior experience in reviewing portfolios of entry-level design applicants was required. After scheduling a one-hour block with each participating practitioner, the data collection took place in a conference room at his or her firm.

The data collecting process involved three steps. First, the designer watched a four-minute slide show to get an overview of the portfolios. The designer judge 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 number in front of each portfolio. Second, the designer viewed the timed slide show and independently evaluated each portfolio using a locally developed assessment instrument to gauge its novelty, appropriateness, technical merit, aesthetic appeal, overall creativity,

and hiring potential. Each dimension was measured using a 7-point Likert-type scale. The researcher formatted the portfolios into a single presentation containing 184 portfolio slides. The researcher set up each portfolio slide to advance to the next slide after ten seconds to control the amount of time the participants spent on the assessment. Following each portfolio, a slide instructing the designers to evaluate the previously viewed portfolio was added; this slide was timed to last fifteen seconds. The designer judge spent approximately thirty-five minutes completing the assessment. 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. 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 was initiated. 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.

## 5. Results

The quantitative and qualitative findings of the study reinforced each other and provided answers to the research questions. For the first question, based on the practitioners' assessments, the findings indicated significant correlations between the different creative dimensions: novelty, appropriateness, technical merit, aesthetic appeal, overall creativity, and hiring potential (see Figure 1). This implies that overall creativity and its various dimensions played a significant role in practitioners' hiring decisions.

More specifically, most practitioners revealed in their interviews that overall creativity and technical skills were the primary criteria guiding their portfolio assessments and hiring decisions. They also considered factors including articulation, composition, clarity of the portfolio presentation, as well as the candidate's personal characteristics and work capability (see Figures 2 and 3).

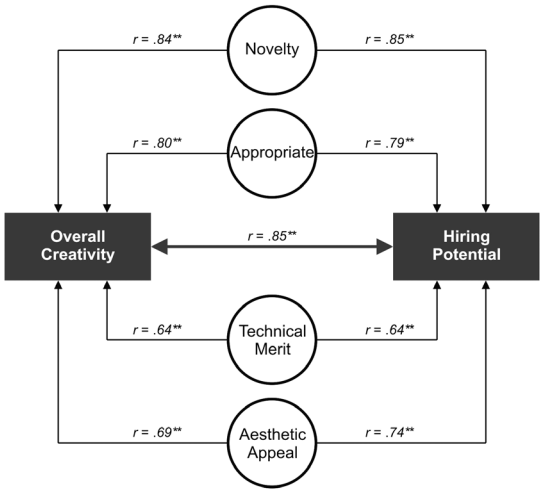


**Figure 1.** Model describing relationships between overall creativity, hiring potential, and creative dimensions.

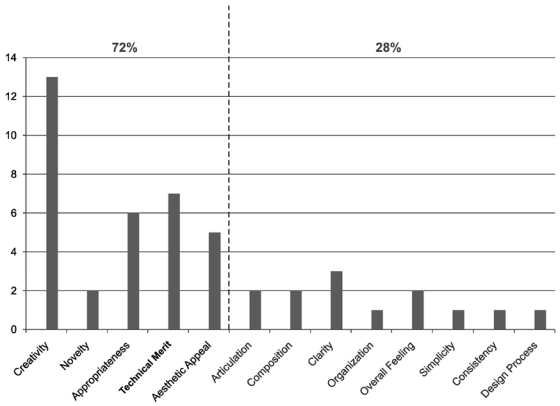


**Figure 2.** Qualitative portfolio assessment criteria.

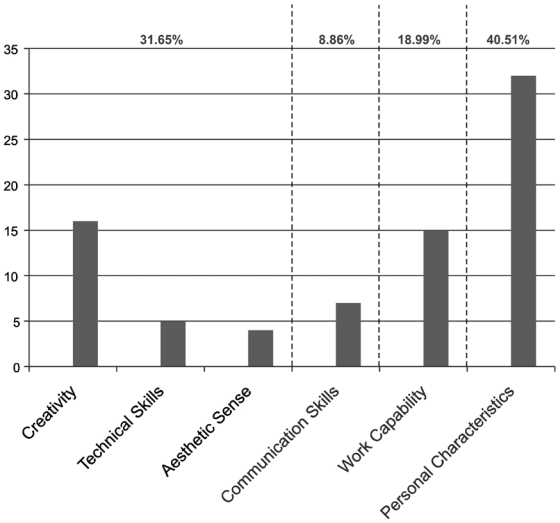


**Figure 3.** Qualitative hiring considerations.

When asked to describe creative design portfolios, designers mostly referenced originality, usefulness, attractiveness, and technical skills. As shown in Figure 1, correlation analyses also confirmed that rated scores on overall creativity were highly associated with scores on novelty ($r = .84$), appropriateness ($r = .80$), aesthetic appeal ($r = .69$), and technical merit ($r = .64$). Finally, the interviews revealed that most practitioners considered creativity as one of the most important criteria used in hiring an entry-level designer (see Figure 3). Correspondingly, results from the portfolio evaluation indicated a strongly significant relationship between overall creativity perceived in a portfolio and hiring potential ($r = .85$, r squared $= .72$, $p < .01$). In other words, American design practitioners viewed the level of creativity in portfolios as a good predictor of employability.

In addition, the assessed dimensions appeared similar to criteria that designers regularly consider in reviewing portfolios. Using international portfolios did not impede the American practitioner evaluation. American designers evaluated the portfolios based on the quality of design works rather than their cultural content. Only a few remarks were made concerning differences between the Thai and U.S. portfolios. One judge mentioned that "I think the graphic composition, and this can be sort of cultural, was a little busy." Another judge stated, "Our design schools prepare our students very well. It's just graphically, we don't seem to be at the same level as the international."

## 6. Conclusions and Implications

The present study explored American practitioner evaluation of Thai entry-level portfolios and perceptions of creativity in the context of interior design. Three basic research questions were addressed: what criteria do American practitioners use when assessing portfolios; what do practitioners consider creative in portfolios; and does perceived creativity impact practitioners' hiring decisions? The study findings revealed that designers recognized the creative dimensions of novelty, appropriateness, technical merit, and aesthetic appeal as indicating overall creativity in portfolios. The interview responses also affirmed the correlation between these dimensions and overall creativity, while stressing that the dimensions did not stand alone, but were interrelated with other discipline-specific criteria. More importantly, practitioners confirmed that creative portfolios could enhance the likelihood of applicants being called for an interview or even hired. In addition to the portfolios, the personal characteristics and work capability of the applicants also influenced practitioners' decisions.

This study offers an insight into what American designers expect in new hires through the assessment of creativity in entry-level portfolios. The findings have important implications for both Thai and American design educators and students. Educators should emphasize creativity and its associated attributes of novelty, appropriateness, technical merit, and aesthetic appeal in their studio courses and curriculum to prepare students for practitioner expectations. They could structure design problems to address creativity and its dimensions, as well as include them as criteria to evaluate the solutions. Importantly, educators should also instruct students to weigh the various creative dimensions in each design project appropriately. None of the four dimensions is alone sufficient to fully determine the overall creativity of a portfolio. Students need to demonstrate all these qualities in their work. They should also present a variety of technical skills, such as using computer programs and hand sketching, in their portfolios.

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