



# Discovering Taiwanese design college students' learning performance and imaginative capacity



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## ABSTRACT

Imagination affects not only the structure of design ideas at the initial stage but also influences the manifestation of final products. The purpose of this study was to investigate the association between Taiwanese design college students' imaginative capacity and their learning performance in class. On the basis of recent scholarship, the authors proposed several reasonably related factors, which were classified into three aspects: personality traits, learning atmosphere, and imaginative thinking. They then verified and discussed four research questions through a teaching experiment with 63 junior college students in YunTech, Taiwan. To proceed smoothly without significantly changing the current teaching process, the authors developed a set of supplementary teaching material and two sets of questionnaires which they then used in the teaching experiment. The results of the teaching experiment proved and suggested the following points corresponding to the research questions: (1) students' senior high school backgrounds have an effect on their imaginative capacities; (2) judges from other schools should be invited to join the judgement to ensure fairness and with a broader scope; (3) students' imaginative capacity indeed has an effect on the grade of their final products in the judgement; (4) teachers can identify students with higher imaginative capacity through the responses to the proposed supplementary teaching materials and questionnaires used in the study's curricula. Furthermore, the supplementary teaching material is conjectured to be able to inspire students' imaginative capacity.

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## 1. Introduction

Over the last twenty years, Asia has experienced a boom in the establishment of new universities, and the education system has been significantly restructured; as a result, college graduates have today become the leading players in the job market. As several studies have suggested, success in today's job market requires not only adequate professional competence but also possession of more vivid creativity and imagination than others (Amabile, 1983; Srinivasan & Chakrabarti, 2010; Sternberg & Lubart, 1999; Weisberg, 1993). As a result, in recent years, many researchers have become interested in exploring how best to use college curricula to maximize students' imaginative capacity. Before one can maximize the students' imaginative capacity, it is necessary to evaluate their imaginative capacity and even construct some reliable and quantifiable connections between teacher and student. However, imaginative capacity is such an abstract and immeasurable entity that raising the students' imaginative capacity is not very easy. For a design college that task is more difficult because its curricula are not like other normal curricula. The design college curricula often have diverse subjects and require more

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teacher–student interaction. Therefore that task necessitates the use of different tools and approaches. Being the one of only a few studies on design imagination, this study focused on discovering the Taiwanese design college students' learning performance and their imaginative capacity.

### 1.1. Present educational situation in relation to imagination in Taiwanese design colleges

In this study, we examined imaginative capacity via factors related to the exhibition of imagination and gathered the indirect information piece by piece and then assembled the separate pieces into a big picture. Several countries have developed some tools for assessing imagination. For example, Singer et al. proposed a tool called the Short Imaginal Processes Inventory (SIPI) ([The Measurement Group Archives, 2011](#)), while Thompson developed the Two-Factor Imagination Scale (TFIS, 2011). Both tools evaluate the imaginative capacity of an individual using a self-evaluation approach. In both tools, the content of the questionnaires is relatively limited, focusing as they do on the process of imagination; moreover, both of these tools were applied to adolescents and adults. That is, neither tool was tailored to apply specifically to college design-major students. Furthermore, results obtained from those evaluations do not give any feedback or suggestion as to how students can best harness their imaginations or even improve their imaginative capacity.

Design curricula offered by colleges in Taiwan tend to be characterized by the following features related to the proposed tools and approach of this study.

1. Long teaching hours: the average core design curriculum involves four to eight hours of teaching time per week. Because the curriculum hours are quite long, instead of being arranged on the same day, they have to be spread across two days. Usually, during the beginning part of the class, the teachers give a short lecture according to the syllabus (or teaching plan) and judge their students' learning achievements from the last week in order to determine whether the students can move on to the next stage or whether they must redo the work from the previous week. The remaining time is then used for students to carry out discussion with teachers or to prepare for the judgement next week. This feature often could result in unfair judgement because of subjective differences caused by excessively long teaching hours, and it could also influence the students' originality or imagination.
2. Numerous teachers: most of the curricula have involved between two and four teachers. The professional backgrounds and areas of expertise of these teachers vary, and they provide the students with suitable and timely suggestions when the students feel uncertain about the class work. As cross-disciplinary integration is a key focus today, teachers with different specialties are clearly valuable in the quest to help students diversify their work. However, this feature could easily cause unfair judgement as well because of each teacher's individual specialization and bias. It certainly could ruin the students' original good imaginative achievements.
3. Students always accept teachers' final judgements: in general, a core design course is offered each semester in Taiwanese design colleges. The core design curricula tend to be worth more credits than other curricula, so if students fail the core curricula in one semester, they will not be able to take other relevant courses the following semester. Therefore, students will often spend more time and energy on making the final models in their pursuit of higher scores in final judgement than on other course work. Moreover, because teachers' final judgements are often influenced by the students' final models, the students' initial imagination could be ignored. In other words, the teachers could be fascinated by good manufacturing skills and ignore superior design ideas.

### 1.2. Research questions of the study

With the vision of creating a better imagination education in design curricula in the future, the primary expectancy of this study was to discover clues for ways to evaluate every student's imaginative capacity. To integrate imaginative capacity building elements into current design curricula, we considered the above-mentioned features of the core design curricula so that appropriate plans could be developed. Because most teachers and students were familiar with the present teaching process, we could not use an entirely different teaching process to evaluate student's imaginative capacities even if the process were better. Without significantly modifying the present teaching process, we decided to design a set of supplementary materials and an assessment table to record the students' imagination developments and even inspire their imaginative capacity. To completely discover Taiwanese design college students' learning performance and imaginative capacity may be very difficult, however, we would like to examine various possible factors that might influence design-major students' imaginative achievements and imaginative capacity for discovering their learning performance. The four research questions of this study are presented below:

1. Do students' school backgrounds have an effect on their imaginative capacities?
2. Does the currently employed evaluation process for design curriculum require any modification?
3. Do students' imaginative capacities have an effect on the grade of their final products?
4. Is it possible for teachers to identify students with higher imaginative capacity based on the present curricula they offer?

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