Applying Teaching Strategies for Design Students' Learning Effectiveness on Blended Learning

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Abstract
Flipped teaching has been going on for a long time in various ages and academic fields, and blended learning has gained the strengths of platform and traditional method to create the more active learning environment. This project is based on the different teaching strategies (traditional teaching model / blended teaching model) to test students' pre-class readiness and learning effectiveness. In the study, students with different learning styles were examined their learning readiness to investigate the learning effectiveness on design teaching. SPSS statistical analysis was used to inspect if blended teaching model and students' learning styles have a significant relationship with student learning readiness, and indirectly effect the learning effectiveness. Through the students' learning performance and experiences, we will conduct the direction of future implementation of practical design education.

Keywords: Teaching Strategy, Learning Style, Learning Readiness, Learning Effectiveness

Introduction

Problem of Design Education

> *"Blended learning approach to gain the strengths of both online platform and traditional method for achieving identified learning outcomes and create a more active learning environment." (Graham and Robison, 2007)*

Blended learning combined both classroom teaching and technology instructions (Garrison and Kanuta, 2004). The strength of blended learning is integrated e-learning and traditional teaching. The approaches of blended learning conform classroom teaching and effective workplace practices.

The concept of blended learning in this study based on design education is no longer learn the overall skills, but the actual needs and skills to enter the practical workplace. Design students learn about their own lack of knowledge and ability by self-learning and problem-based learning, and the role of the teacher is transformed into a supporter to assist for the professional knowledge, problem solutions, and design skills required by the student at each stage of the program execution.

Research Objectives and Problems

Are the advantages and effects of blended learning applicable to design education and design practice learning? Can blended learning improve the effectiveness of design practice learning? We integrated blended teaching model included flipped teaching, in-field learning (practical workplace) and integrated capabilities (technology and personal skill) to enhance student practical abilities and experiences on design education. We compared different teaching strategies (traditional design learning and blended design learning) and students' learning styles to investigate the learning readiness and effectiveness.

The research outlines the following research questions:

(1) Do teaching strategies significantly affect students' learning readiness?
(2) Whether design students with different learning styles significantly affect their study readiness?
(3) Whether students with differences learning readiness will affect students' learning effectiveness?

Teaching strategies on design practice

Practical design education is different from the teaching of theoretical courses. How to introduce practical workplace experience into students' classroom learning is an important goal. We try to integrate blended learning, with digital technology and workplace internship, so that design learning has different effects, and make up for the limitations of traditional face-to-face learning method in the classroom (Garrison & Vaughan, 2008). The blended learning model has the flexibility and efficiency of learning, as well as social interaction and practical participation. The blended learning model also combines various teaching media, teaching methods, teaching techniques and environments to enable learners to achieve the best learning effect (Rooney, 2003). See figure 1, the cohort teaching activities which be designed to provide

participants with experience and expertise in curriculum design, teaching strategies, and educational technology integration. The curriculum design involves the course outline for the blended learning. Teaching strategies develop and provide students' experience and skills with online discussions, group work and workplace practices. The teaching technology integration includes the strategies and skills for managing a course. Teachers offer a variety of learning opportunities that allow students to share, discuss, and debate their course redesign experiences to achieve the educational goals (Garrison & Vaughan, 2008).

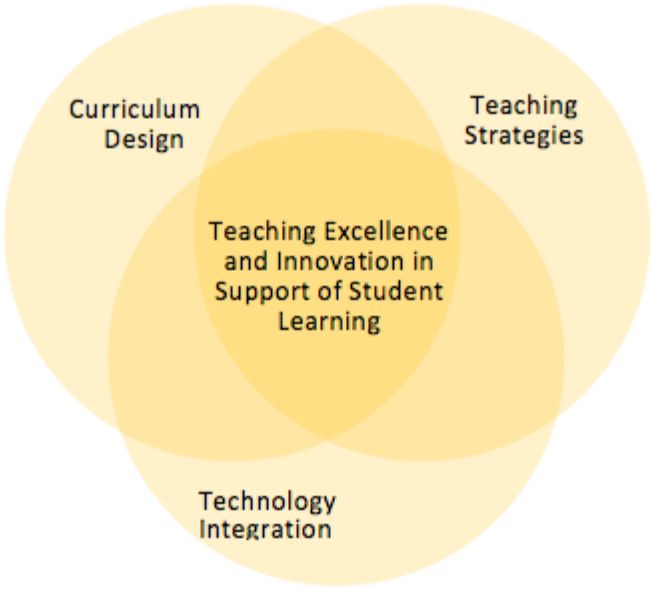

Figure 1: Program outcomes for the blended learning
(Garrison & Vaughan, 2008)

We have increased the flexibility of classroom teaching and the opportunity for students to engage in practical design work, and reduced the time for classroom teaching. Instead, the online learning and practical contact learning style is a "workplace practice" that promotes the practical experience to create an effect that is different from traditional design classroom teaching. From figure 2 and 3, we compare the traditional design learning and blended design learning.

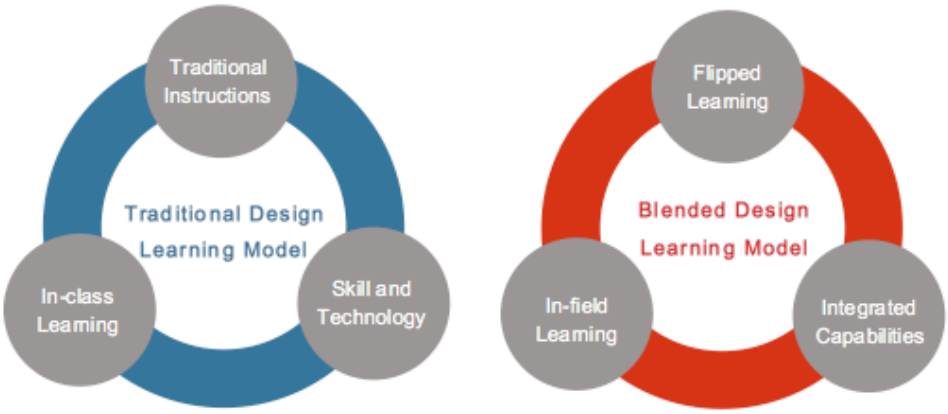

Figure 2 and 3: Compared the traditional design learning and blended design learning
(Reference by Allen and Seaman, 2013; Garrison & Vaughan, 2008)

Learning Styles

Learning style is a learning tendency that individuals prefer during the learning process. With appropriate learning methods, learning efficiency can be improved. Learning style is also a preferred learning factor for learners. When individuals receive and process new information and skills, the habitual preference methods they produce tend to be consistent and persistent (Brown, 2000). Learning style refers to the habitual characteristics of cognition, affection, and emotion that students show through their consciousness, memory, thoughts, and other processes when they are engaged in learning activities. Four learning styles are diverger, accommodator, converger and assimilator (Kolb, 1984).

Divergers interest in thinking observations and specific experiences, using images or holistic views to help learning, but they don't like peer learning interactively. Accommodators enjoy active experiment and specific experience, and good at participating in new things. Convergers prefer active experiments and abstract thinking, who good at finding practical application and problem solving, gaining knowledge through personal experimentation. Assimilators like to observe new things and abstract concepts, good at generalizing and constructing, and can assimilate the discovery of completeness, and put forward a complete explanation.

Zoghi, Brown, Williams, Roller, Jaberzadeh, and Palermo (2010) used Kolb Learning Style Scale to carry out teaching planning, execution and to evaluate of teaching assessment. Zoghi et al., (2010) incorporated students' learning styles into the analysis results, and convergers are suitable for problem-solving learning activities. Their studies have confirmed that different learning styles and different learning methods can touch learners' motivation to learn, thereby improving learning effectiveness.

The learning style of Kolb (figure 4) can provide students with the different learning style to understand whether the learning field or instructional design can meet the needs of students according to their uniqueness. According to Kolb's learning styles, the converger and assimilator are higher for online learning than the diverger and accommodator. Convergent and assimilated learners prefer independent thinking and personal implementation, while divergent and accommodate learners like to observe or interact with others (Lu, Jia, Gong and Clark, 2007). Considering the different learning styles among learners, their learning situation, motivation and behavior will have significant relationships. Instructors can adjust the arrangement of learning activities and instructional design, triggering learners' learning achievements and effectiveness.

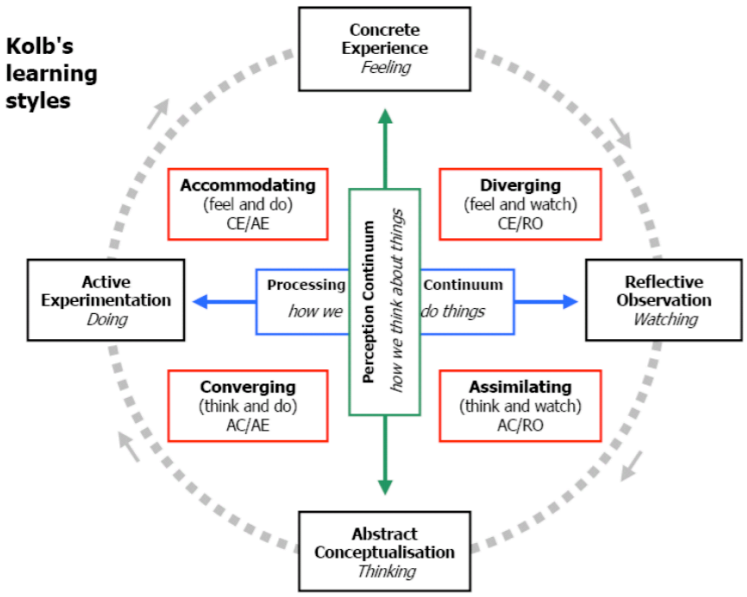

Figure 4: Kolb's Learning Styles (Kolb, 1984)

Learning Readiness

Readiness refers to the individual's psychological preparation status or learning action. According to the concept of flipped classroom, learning readiness can be summarized into four aspects: self-regulated learning, classroom participation, active learning, and sense of identification as following.

Self-regulated learning

According to the research of Zimmerman (1989), students with high learning achievements have clear goals for learning, and will seek learning strategies to help them achieve better learning effectiveness and form the ability to learn independently. Comparing the state of receiving knowledge and self-control between traditional classroom learning and the new learning model, it is also called self-discipline learning. High self-adjusters will set learning goals and monitor the learning process to seek effective learning. Nicol (2006) believes that active and positive self-adjustment learning can flexibly adjust goals for different learning environments or stages, and set various strategies to improve learning effectiveness.

Classroom participation

Asian students are accustomed to narrative teaching. They seldom speak or ask questions in the classroom. It is also more difficult for them to exhibit positive behaviors or work hard to participate in discussions. George et al., (2009) believed that when students cannot engage learning activities, it is more difficult to invest in emotions, and when students can invest in learning activities or identification, learning participation and time will be longer, so they can get better learning achievements or performance (George, Kinzie and Whitt, 2011). Learning participation, recognition or action will enhance students' self-directed learning attitude and achieve good learning results.

Active learning

Active learners have the qualities of active hard work, can guide thinking or receive information in the group, do meaningful activities, ask questions carefully, be able to accept changes in flipped learning, and actively interact with peers to solve problems (Roehl, 2013).

Sense of identification

Identification is a psychological tendency that can guide behavior and thoughts to be consistent, and it can also be a manifestation of belief or emotion. Identification is the feeling of belonging formed by the process of interpersonal interaction, which will vary with the individual's values and experiences. Identification is very important for learners' positioning in the group and the maintenance of relationships. If students have higher identity, they will be interested in learning activities and pay more effort or time to improve participation and learning effectiveness.

Learning Effectiveness

Learning effectiveness is an assessment of the "quality and quantity" of teaching. Learning Effectiveness refers to the learning behavior results presented by learners through the process of teaching and learning. It is also whether the teaching goals and expected learning goals are achieved; whether the teacher’s teaching and learning strategies are pragmatic; whether the textbooks actually correspond to the curriculum structure and teachers Teaching effectiveness, teaching quality, and the main basis for providing school counselors to assist students. Blumberg (2008) pointed out that it takes time and practice to train teachers to focus on student learning. Teachers need to understand how to use new teaching methods or technologies to help students learn, and how to play different roles in classroom teaching and use different assessment methods to help students improve their learning effectiveness.

From the perspective of students, learning effectiveness can help students to understand their own efficiency, learning difficulties, learning conditions, and the importance of adjusting learning approaches. It is also the main basis for judging the effectiveness of higher education institutions in European and American governments (Ewell, 2001). The tracking of learning effectiveness can help to review and improve student learning, teaching planning and adjust the learning guidance. Liem, Lau & Nie (2008) believes that self-discipline, work values, learning goals and students' learning strategies, homework arrangements and peer relationships are all related to learning effectiveness.

Research Method

The purpose of this study is to explore the relationship between different teaching strategies, learning styles, their learning readiness and learning effectiveness. According to the research questions, the following research hypotheses are proposed:

H1: Teachers’ teaching strategies have a significant relationship with students’ learning readiness

H2: There is a significant relationship between student learning style and student readiness

H3: Teachers' teaching strategies have a significant relationship with students' learning effectiveness
H4: There is a significant relationship between student learning style and learning effectiveness
H5: Students' study readiness has a significant influence on learning effectiveness

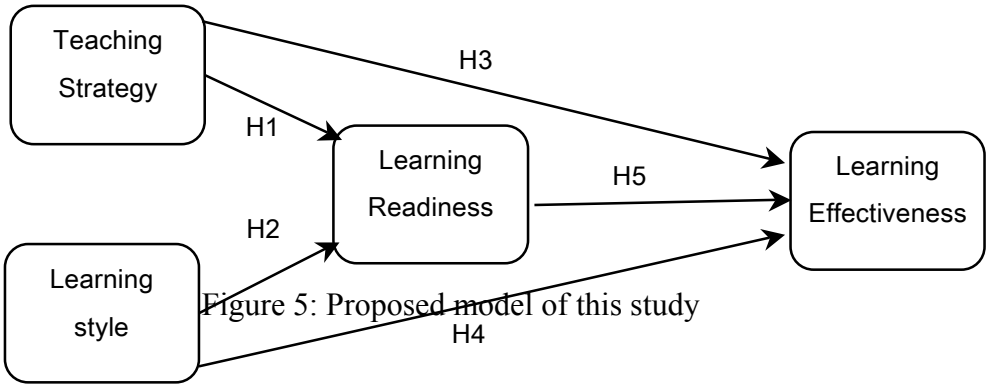

Figure 5: Proposed model of this study

Subject and procedure

The subject in this study are undergraduate students who have taken the advertising design course. Students have learned the basic knowledge of advertising marketing and drawing skills, but have never been exposed to the practical learning of advertising design implementation.

The first phase of the personal learning style will be surveyed; during the implementation, there will be an execution feedback form, a record of the student's learning readiness; finally, the learning effectiveness will include surveys of in-class activities and workplace experience feedback. Students' learning performances and implementations are to understand the direction of future implementation of teaching plans to improve.

The test scale will be distinguished according to different scales and stages. We used 6-point Likert scale questionnaire and open questionnaire in this research. Students' learning style calculates the four differentiated quadrant positions in the order of A, B, C, and D. The six-point Likert-type scale is used for the scale, which is divided into "very disagree", "disagree", "not agree", "a little agree", "agree", and "strongly agree". The results were analyzed using SPSS. The significance and correlation of the research were validated by Pearson correlation analysis.

Variables and scales

The scales used in this research are all mature Chinese scales whose reliability and validity have been verified by many scholars.

Learning Style

This study used Kolb's Learning Style Inventory (LSI 3) Chinese questionnaire, a total of 12 questions, is based on students' experience, thoughtful observation, active

execution and abstract concepts. Four types of learning style are to sort and understand students' learning preference.

Learning Readiness

The scale of learning readiness contained 21 questions in four facets. "self-adjusting learning" means that learners can effectively set learning goals, use strategies to achieve their goals, and adjust and monitor the effectiveness of self-learning (Zimmerman, 2001). "active learning" is a process in which learners make sense through active cognition and active learning in learning environment. "classroom participation" means that learners insist on participating and actively ask questions and express opinions (Glanville and Wildhagen, 2007); "sense of identification" means that learners are highly involved performance and recognition of the curriculum (Finn, 1993).

Learning Effectiveness

Based on 26 factors proposed by Pulkka & Niemivirta (2013), we explore the predictive power on students' learning effectiveness included multiple thinking, teamwork, learning planning, workplace practice and professional improvement are more suitable for design assessment questions for learning.

Table 1: The Pearson correlation analysis of learning readiness and learning effectiveness

	1	2	3	4	5	6	7	8	9
	Self-regulated learning	Classroom participation	Active learning	Sense of identification	Multiple thinking	Teamwork	Learning planning	Workplace practice	Professional improvement
2	.445** .000	1							
3	.557** .000	.520** .000	1						
4	.405** .000	.326** .000	.269** .002	1					
5	.355** .000	.310** .000	.286** .001	.591** .000	1				
6	.130 .141	.105 .233	.133 .132	.272** .002	.475** .000	1			
7	.377** .000	.293** .001	.393** .000	.461** .000	.645** .000	.358** .000	1		
8	.370** .000	.386** .000	.334** .000	.468** .000	.606** .000	.406** .000	.522** .000	1	
9	.420** .000	.400** .000	.368** .000	.539** .000	.715** .000	.412** .000	.611** .000	.699** .000	1

** the significance level is 0.01 (two-tailed), the correlation is significant.

Conclusions

Cronbach's α coefficients of learning style was 0.916. Cronbach's α coefficients of learning effectiveness was 0.924. The results of the study show that teaching strategies and student learning styles have no significant correlation with learning readiness and learning effectiveness. We can see the results of Pearson correlation analysis show that all variables of learning readiness and learning effectiveness have significant correlations except teamwork and self-regulation learning, classroom participation, and active learning.

Different teaching strategies are insignificant relationship with student learning readiness and effectiveness. Students' individual learning readiness are important to enhance their learning effectiveness of design practice education. How teachers educate students to prepare for and study design profession is the most influential to learning effectiveness.

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