The Effects of Learning Style and Flow Experience on the Effectiveness of E-Learning

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Abstract

The purpose of the study was to investigate learning styles and flow experiences to the effectiveness of E-Learning. To fulfill this purpose, instruments consisted of demographic survey, Kolb learning style scale, flow experience scales, pre-test and post-test of content, learning satisfaction and introspection questionnaire were used. Findings of this study show that, firstly, there is significant difference between different learning-style samples in their learning effectiveness. Secondly, there is statistically significant difference between different learning-style samples in their flow experiences. Thirdly, there is some correlation founded in samples' flow experience and learning effectiveness.

1. Introduction

Students have different abilities, personalities, motives and attitudes, and how to teach according to each individual's aptitude is the important subject in education today. With the information technology combined in the teaching, if the student's attitude, needs and characteristics are not understood, it will be impossible to provide a well-established E-learning environment. Flow experience theory came from the observation for working and recreational activities, which has its practicality and universality, and it is closer to human nature, therefore, it is suitable to explain the psychological state of individual behavior.

2. Research Objective

This research is to study the effects of learning style and flow experience in the E-learning environment, and the impact the learning style has on flow experience. The three of the research objectives are:

(1) Understanding whether the student's learning style would have impact on the effectiveness of E-learning.

(2) Understanding whether the student's learning style would have impact on the flow experience of E-learning.

(3) Understanding whether the student's flow experience would have impact on the effectiveness of E-Learning.

3. Terminology

3.1. E-Learning

Widely speaking, E-Learning is a learning method conducted through any digital technology. Because the role of Internet is very important in the learning domain today, the E-Learning talked by general public mostly means the learning activity through Internet[1]. The E-learning in this research especially means the learning activity conducted on the internet teaching platform using the internet as media. The E-Learning environment in this research is the Cyber University at NKNU and JoinNet synchronized videoconference. Teacher started a netmetting and students attended it and then the course proceeded.

3.2. Learning Style

The learning style includes factors such as cognition, affection, society and physiology, which have the uniqueness, stability and consistency. In short, the learning style means the learning preference of each individual, which is the habitual response of effective learning [7]. The objective to understand each student's learning style is to improve the instruction in order to help them get the point. This study has adopted Kolb's Learning Style Inventory to test the students to see which one of the learning styles they belong to—Diverger, Accommodator, Converger

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and Assimilator. Kolb's Learning Style was shown in Fig. 1.

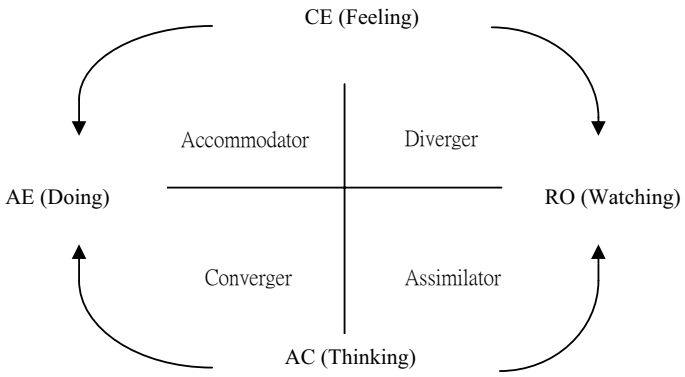

Fig 1. Kolb's Learning Style

3.3. Flow Experience

Flow Experience is a concentrating, meditating state of mind, the individual who enters into the flowing state can feel the uplifting power physically and mentally, and further to go beyond one self [3]. Csikszentmihalyi [4] believed that the individual's attention, senses, memory, goal is in harmony with the individual, and that state of mind is flowing. This study adopts the "flow experience scale" designed by Csikszentmihalyi, M., & Csikszentmihalyi, I. [5] and the "Degree of the flow experience scale" designed by Chen [2] to test the flow experience the students had and the degree of the flow experience.

In the "flow experience scale", the interviewees filled out the challenging degree of the current tasks, and their ability to overcome. When the ability of the individual is insufficient to deal with the challenges (high challenge /Low skill), the individual then experience anxiety. When the ability of the individual is sufficient to deal with the challenge faced (low challenge/high skill), the individual then feel bored. When the ability of the individual measured up to the challenge, but with the lower index (low challenge/low skill), the individual then feel apathetic. Only when the ability of the individual measured up to the high level of challenge (high challenge/high skill), the individual then experience the flow. Fig. 2 showed the four channel flow model.

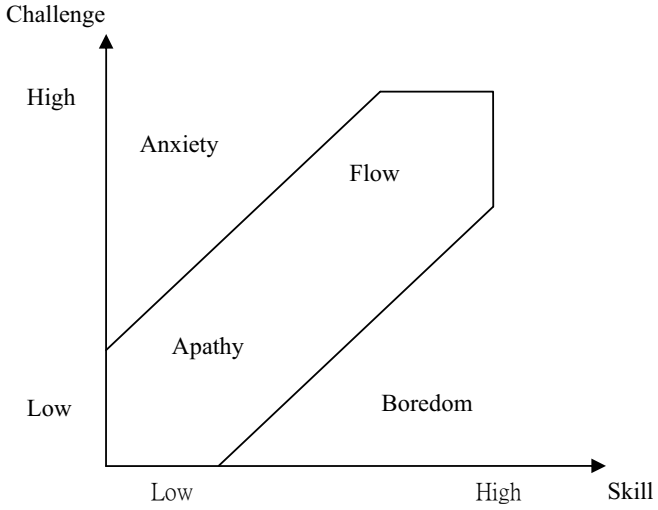

Fig 2. Four Channel Flow Model
From: Csikszentmihalyi M., 1975

3.4. Learning Effectiveness

Learning effectiveness means after the instruction, the student has changed on the level of knowledge, skill and attitude [6]. This study adopts "learning outcome", "learning satisfactions and self-evaluation" questionnaires to test the student's effectiveness on E-learning.

4. Research Environment

The research structure was shown in Fig. 3, and research environment introduced as follows:

(1) Research subject：The subjects of this research are the student's of the Information Computer Education Graduate School at NKNU. The course conducted was "Multi-media", which conducted from July to August 2004, total of six weeks. The sources of the students were the middle school teachers from central and southern Taiwan, the number of people was 21.

(2) E-Learning environment:

Cyber University at NKNU (Web address: http://digschool.nknu.edu.tw/)

Instant Interaction System－JoinNet (Web address: http://mmc.stu.edu.tw)

(3) Information gathered:

-Personal information survey
-Kolb Learning Style Inventory
-Content tests before and after class
-Five tests of flow experience scale, the degree of flow experience scale
-Learning satisfactions and self-evaluation questionnaire

5. Data analysis

The result of descriptive statistic shows that in the learning style category, the Diverger is 10%, Accommodator is 28%, Converger is 33% and the Assimilator is 28%. Among the five flow tests, most of the interviewees experience flow or boredom. On the degree of flow experience, most of them were middle to high. On the statistic of the learning effectiveness, the average score of the interviewees is 13.19 with the standard deviation of 7.39. On the other hand, on the learning satisfaction and self-evaluation, the total average of the Likert Scale was 4.12 with the standard deviation of 0.49, thus we know the interviewers has significant learning effectiveness.

The result of the inferential statistic shows that different learning style has significant effect on flow experience, different learning style has significant effect on the overall learning effectiveness, and the student's flow experience is correlated to his or her learning effectiveness.

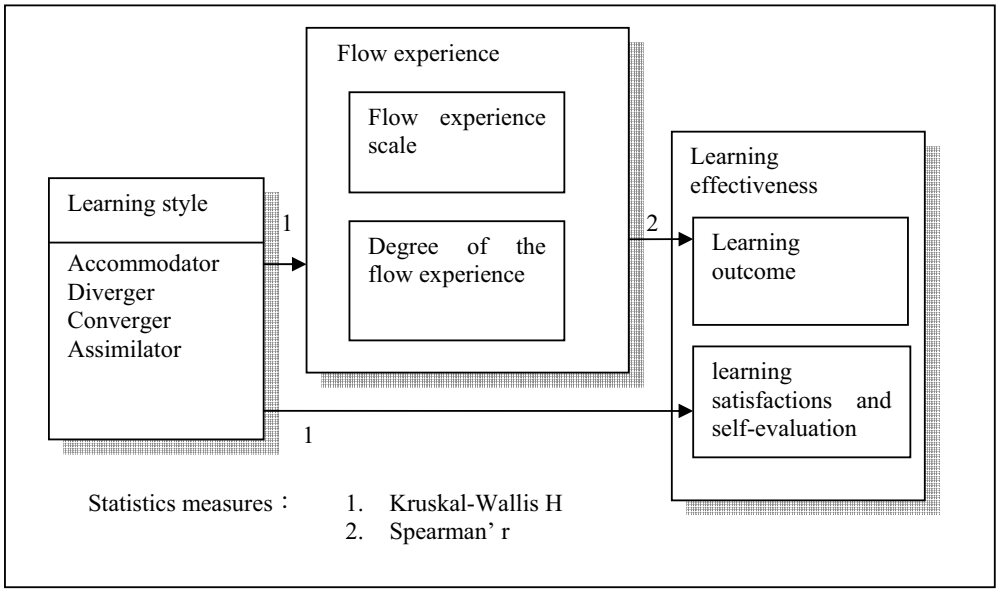

Fig 3. Research Structure

6. Suggestion

According to the analysis result, here are some suggestions for E-learning implementing unit and future study.

6.1. Suggestions for E-learning implementing unit

(1)Help the students understand their learning styles

E-Teaching uses the browser as the interface for teaching, and the hyperlink function helps the skipping learning possible, which means that the students may freely select the order of teaching materials. If the E-teaching platform can help the student diagnose his/her learning style and give practical learning path suggestion, it can help to improve the learning effectiveness effectively.

(2)Help the students improve the flow experience during E-learning

Our research discovered that the student's on-line flow experience and its E-learning effectiveness are closely related. According to the research results by many scholars we found that even though the individual has not reached the flowing state, it can still reach the flow by adjusting the contextual environment (such as increasing the challenges or improving the individual's ability). Therefore, if the teacher can detect what challenge and skill status the student's going under using the information technology assisted teaching system, then the teacher would be able to instruct equal level of work or practice according to the student's learning condition and needs. Increasing the challenge is the force that goes up for the students, a successful experience gained through this experience may initiate the joyfulness and continuous drive for learning.

6.2. The suggestion for future study

The domain of the research on the relation between the factors such as gender, age, occupation, computer experience and flow experience is worth the future researcher's attention. The flow scale this research adopted was designed for the people in the western countries, besides the difference after the translation, the flow experience may be different due to different cultures, therefore, the scale may have suitability issues. In order to test the flow experience of domestic samples correctly, the scale should be tested and revised to meet the characteristics and the needs of our citizens.

7. Conclusion

The primary consideration for implementing E-learning should be focused on the needs of the students. For instance: What are the factors that prevent the student from E-learning? How to help the student understand the practicality of E-learning and utilizing the functions? How to help the student turn E-learning into a tool that supports work? How to test the result of implementing E-learning? How to improve the effectiveness on E-learning effectively? These are the subjects need the educational unit's concern to build a true and practical E-learning platform. This research has made the suggestion according to the statistic and analytic result, and hope that it would provide a help for people who are committed to the better E-Learning.

8. References

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