Attitudes towards Knowledge Transfer in the Context of Web Problem-Based Learning Integrated Circuits Course – From the Perspective of High School Students

Kuo-Hung Tseng
Graduate Institute of Business and Management
Meiho Institute of Technology
Pingtung, Taiwan
gohome8515@gmail.com

Chi-Cheng Chang
Department of Industrial Technology Education
National Taiwan Normal University
Taipei, Taiwan

Yen-Hao Chen
Graduate Institute of Business and Management
Meiho Institute of Technology
Pingtung, Taiwan

Shi-Jer Lou
Graduate Institute of Vocational and Technical Education,
National Pingtung University of Science and Technology
Pingtung, Taiwan
lousj@ms22.hinet.net

Ron Chuen Yeh
Graduate Institute of Business and Management
Meiho Institute of Technology
Pingtung, Taiwan

Abstract—This study was designed to establish a web problem-based learning (WPBL) platform as a knowledge transfer device for the purpose of reducing the poverty gap between rich and poor in Taiwan. As a whole, the result of using the platform was improved rates of knowledge transfer and of student learning results, which is an indirect way to reduce the poverty gap.

Keywords—knowledge transfer; PBL; WPBL

I. INTRODUCTION

PBL is an efficient way of learning (Huang & Chuang, 2007). Lowerntal (1996) found that PBL solved various problems in the course, increased students’ learning motivation, improved the relationship among members and resulted in open-minded discussion with each other. Araz and Sungur (2007) believed that a PBL environment is beneficial for students’ scientific thinking method in science education. The researchers hope to reduce the poverty gap in Taiwan through knowledge transference. The research objectives were thus as follows: 1) Measure students’ attitudes about knowledge transfer and the platform; 2) Measure students’ satisfaction with the platform; 3) Discover variables affecting students’ use of the platform.

II. METHODOLOGY

The experimental group that used a WPBL teaching method was formed by 35 students; the control group that used a traditional teaching method was formed by 33 students. The study was based on a PBL of Integrated Circuits for eight weeks. A questionnaire with 5-point Likert scale was used. Participants were also asked some questions. The purpose of these methods was to gain a deeper understanding of how students perceive knowledge transfer and the WPBL platform.

III. FINDINGS

Quantitative findings were 1) Students had positive attitudes about KT and gave the best evaluation scores toward academic knowledge; 2) The control group received better evaluations than the experiment group; 3) PBL significantly improved students’ academic progress from pre- and post-written exams; 4) ANCOVA results showed that the platform significantly improved the number of students that show significant academic progress based on students’ academic test scores; 5) Students had their best feeling about the platform but had the least satisfaction toward using it.

Qualitative findings were 1) Platform’s interactions and functions and problem solving in the platform affected students’ willingness to use the platform; 2) Students’ academic progress was affected by their cognition of the platform, teachers’ understanding of the students, advantages of the platform, and other personal factors.

IV. DISCUSSION AND CONCLUSION

The conclusion, discussions and suggestions were 1) Students had more positive attitudes towards KT and viewed academic knowledge as most important; 2) Acquisition of industry knowledge increased students’ interests in learning and it reinforced academic knowledge. Communication channels to industrial fields...
should be offered in order to encourage students to participate in industry knowledge transfer; 3) PBL platform had significant effects on improving students’ learning outcomes. In addition, PBL combined with WPBL platform resulted in significant effects on students’ academic progress; 4) Students’ satisfaction can be improved through their own personal webpage layouts, online music, drafting software, audio chat rooms and online test functions; 5) WPBL platform shortened the length of the learning process, enhanced learning efficiency and raised levels of self-achievement.

References