Detecting the Factors Affecting the Learning Performance of Students with Different Learning Styles in Flipped Learning

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INTRODUCTION

• Problem situation
  This study employed a rigorous procedure to validate the proposed factors of students with different learning styles affecting their learning performance in flipped learning.
  Literature review
  • Flipped Learning: The Academy of Active Learning and Sciences (2018) developed an aligned definition of Flipped Learning as a framework that enables educators to reallocate their role from the traditional classroom model of introducing course concepts before class, allowing students to use class time to study each student through active, practical, interactive applications of the course principles.
  • Online self-regulation: Pintrich and De Groot (2000) defined self-regulation as self-regulating behaviors, such as managing one’s time, setting goals, and acquiring strategies for learning work.
  • Peer assessment: Taylor (2010) explained that a learning style is the manner in which a learner interacts with and responds to the learning material or environment, and students may also use different learning strategies depending on the task.

RESULTS

• Exploratory factor analysis results of students’ attitudes toward online self-regulation and peer assessment.
  The results suggested that these factors had highly acceptable reliability for assessing the students’ attitudes toward online self-regulation and peer assessment.
  Correlation analysis of students’ attitudes toward online self-regulation and peer assessment with achievements.
  The independent variable “Time management” (r = 0.31, p < 0.05) had a moderate correlation to the dependent variable, the post-test. Meanwhile, “Help seeking” showed the highest correlation (r = 0.71, p < 0.01).
  “Positive Attitude” showed the highest correlation (r = 0.78, p < 0.01).

RESEARCH PROBLEMS

• Importance of the study
  Compared with previous studies, the major contributions and significance of this study are that it has a specific learning environment setting and provided an integral research perspective regarding college students’ engagement in online self-regulation and peer assessment for learning performance that proposed a link between them in flipped learning.

• Problem Statement & Hypothesis
  These specific research questions in this study were posed: (a) What indicators can be used to assess students’ online self-regulation in flipped learning? (b) To what extent do students exhibit their peer assessment attitudes toward flipped learning? and (c) What are the implications of this study for flipped learning research?

METHOD

• Method
  Sample / Study Group
  The participants in the study were pre-service teachers in China, with a total of 42 students participating.
  Based on the 360° feedback as proposed by Binziger and Oliveira (2011), 18 students were assigned to the activity style group, and the other 24 were assigned to the reflective-activity style group, the sequential-activity style group, and the global group. The first 18 were assigned to the activity style group.
  Data collection tools
  Two pre-validated scales including the scale of online self-regulation and the scale of peer assessment were completed and the reliabilities were calculated.
  The Fink-100 Index of Learning Style Questionnaire was used to identify students’ learning styles.
  Data analysis
  The data were analyzed using exploratory factor analysis, correlation analysis, and t test.

RESULTS

• Effect of prior knowledge and flipped learning upon learning-style classification.
  The pre-test results revealed that these two groups had similar levels of prior knowledge before proceeding with the experiment.
  The post-test results revealed that these two groups had similar levels of performance after proceeding with the experiment.

• Test analysis of students’ achievements in flipped learning
  The t-test result of these achievements showed that a significant difference was found between the scores of the pre- and post-test with t = 2.32 (p = 0.02 < 0.05, d = 0.45), indicating that the flipped learning promoted the students’ achievements.
  The t-test result revealed that the errors of the students’ post-test was significantly higher than the effect of the flipped learning upon their achievement worked significantly.

CONCLUSIONS AND SUGGESTIONS

• Conclusions
  Students with different learning styles had different needs in their online self-regulation.
  Participating students held positive attitudes toward the use of peer assessment.

• Suggestions
  The study proposes a concept change in learners’ student engagement mechanisms for flipped learning to promote students’ learning performance and teachers’ teaching approaches.
  It provides teachers and researchers with a good reference for implementing effective flipped classroom as well as a new direction for flipped learning studies with effective strategies.