Using the Classroom Response System to Enhance Students’ Learning and Classroom Interactivity

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Suggested Citation:

Abstract

Problem Statement: In science education conceptual learning is a key factor to understand the subjects and to solve the problems. Students should begin to learn the subjects on the conceptual level and then solve problems of related concepts. Unfortunately, most of the researches have shown that students generally tend to solve problems without understanding fundamental concepts. Studies indicated that current traditional instruction methods are not effective on the conceptual learning. In this research, an educational technology which would be effective on students’ conceptual learning was used. This technology, which is used widely in Europe and USA is called “Clicker” or Classroom Response System (CRS). In the present study, this technology was used in conjunction with Peer Instruction approach.

Purpose of Study: In this study, the effects of clicker on students’ conceptual learning achievement and interaction (individual and class) were examined.

Method: The quasi-experimental design was used in this study. Students included in control group used flashcard while the ones in experimental group used clicker while answering concept tests. Peer Instruction (PI) method was used for both groups. The achievement of the students on conceptual learning was monitored by Conceptual Survey of Electricity and Magnetism (CSEM) and the individual. Overall interaction of the students in the class was quantified by Interactivity Instrument. Both sections were taught by the same lecturer. Lecturer established a detailed timeline of procedures for the study. During research, both sections received the same lectures using the same PowerPoint slides.

Findings and Results: As a result of the research, the conceptual learning achievement of students in the experimental group was found higher than the students’ in control group. Also, the results showed that the classroom response system and flashcards can significantly improve interactivity in the lecture.

Conclusions and Recommendations: In this research, it was found that the use of the clickers was effective on conceptual learning and interaction of the students. Author reports that students are attracted to the CRS system because it promotes active learning in a large/small-class environment. Also, when the clickers are evaluated as a whole, it can be concluded that clickers offer a powerful and flexible tool for teaching and learning. Clickers can be used in various subjects with students of almost any level of academic training. Based on the findings from this research, CRS offers such an opportunity for educators to adapt to the changing learning environment.

Keywords: clicker, classroom response system, concept learning, educational technology, peer instruction

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