Type of Embedded Questions and Presenting Time in Interactive Video lectures in an E-learning Environment and their Interaction Effect on Instructional Technology Students' Cognitive Achievement, Technology Acceptance level and their Perceptions

Abstract:

Interactive video lectures are considered a promising new instructional technology owing to their characteristics and potentials that address the traditional digital video lectures drawbacks and limited interactivity with the medium. Integrating embedded questions into interactive video lectures is one of the key elements of interactivity in learning. The current research aims to investigate the variables of designing embedded questions in interactive video lectures by developing two types of embedded questions (closed questions - open-ended questions) and presenting them at two different times (while-watching - at the end of watching) in interactive video lectures in a web-based environment, and investigating their interaction effect on instructional technology students' cognitive achievement, technology acceptance and their perceptions of interactive video lecture with embedded questions. A combination of educational research methods was applied including the descriptive method, systems development method, the experimental method, and the qualitative research method. The (2×2) factorial design was applied and a sample of (71) students in the second year, Instructional Technology dept., in Faculty of Special education, Fayoum Univ. was selected and was randomly divided into four experimental groups, the first group had used the closed embedded questions while-watching, the second group had used the closed embedded questions at the end of watching, the third group had used the open-ended embedded questions while-watching, and the fourth group had used the open-ended embedded questions at the end of watching. The e-learning environment has been developed through the web in the light of Mohammed Khams's (2007) ISD model and design standards. Research tools consisted of a pre/posttest of achievement, a technology acceptance scale, and an open-ended questionnaire to identify students' perceptions of interactive video lectures technology with embedded questions. The results showed the effectiveness of both types of embedded questions and both presenting times on increasing cognitive achievement and its mastery, and students' level of technology acceptance of interactive video lectures with embedded questions. The analysis of students' responses to the open-ended questionnaire using thematic analysis method showed that most students have positive perceptions towards the use of interactive video lecture technology with embedded questions when learning the current course, as well as the future use in learning other courses, and that a large proportion of students prefer to use closed questions than open-end questions, and prefer to provide embedded questions while-watching interactive video lectures whether the questions are closed or open-ended. In light of these results, the researchers presented a set of recommendations and suggestions, the most important of is to conduct more research on the design variables of embedded questions in interactive video lectures and associate them to other variables such as viewing time, analysis of viewing strategies and interaction with interactive content.

Keywords: interactive video lectures, embedded questions, type and questions position, technology acceptance, perceptions of instructional technology students.