Evaluation of a Mobile Phone Based Student Immediate Feedback System

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Abstract

The purpose of this study is to explore a cell-phone Short Message Service (SMS) -based immediate feedback system and to reveal opinions of instructors. This study is designed as a qualitative one and data were collected via semi-structured interviews with 4 instructors who used the system in their classrooms. The significance of this study is to help to remove obstacles about the design of such cell-phone based immediate feedback systems and exploring pedagogical guidelines/principles.

Introduction

Any mobile phone which has the ability to send messages could allow teachers to quiz students, to assess students' prior knowledge of a topic and to help determine patterns of thinking in the classroom and all these purposes aim to support increasing classrooms interaction and the active participation of students. The use of the mobile platform as a student immediate feedback system has the same logic as clickers. For that reason, the mobile platform as clickers includes the benefits of classroom clickers. (Kaleta & Joosten, 2007; Hoekstra, 2008; Bojinova & Oigara, 2011; Lennox Terrion &Aceti, 2012).

The purpose of this study was to explore a cell-phone sms-based personal immediate feedback system and to examine the instructors' opinions and requirements about the system. Additionally, based on their opinions and suggestions, this system will be iteratively developed, tested and evaluated. The significance of this study is to help to remove obstacles about cell phone sms-based personal immediate feedback systems in addition to supporting all the benefits provided by personal immediate feedback systems.

Methodology

The system is managed with a web interface. Instructors log in to system with their user names and passwords. After logging in to system, they are allowed to write and ask their questions. The system gives 15 minutes as default response duration for each question. Students only send their selection via text message. System automatically sends a confirmation message to the students, whenever their selection is received.

Context

The system was used in four courses. One of four courses was a graduate level course; three of them were undergraduate level courses. While, the number of students in graduate course was 14, for the other undergraduate lessons, the numbers of students were as following: 20, 27 and 65.

Participants

Participants of this study consisted of four faculty members from different departments (computer education and instructional technology, educational science, civil engineering and industrial engineering). Three of them were female, one of them was male. All faculty members used clicker system before.

Major Findings

Advantages

Anonymity: One of the instructors mentioned that the system being anonymous encouraged students to engage activity.

Availability: Three of the instructors stated availability as an advantage of cell-phone SMS-based immediate feedback systems. Especially one of them emphasized that cell-phone use makes it possible "everywhere" and "anytime" interaction without any extra equipment. Furthermore, using cell-phone removes possibility of swapping devices that cause identification problems regarding grading and absenteeism.

Crowded Classrooms: Two of the instructors said that the system is appropriate to use in crowded classrooms rather than small size ones. The system was found to be fast and practical especially for crowded classrooms. For instance; one of the instructors collects responses of students with piece of papers and she claimed that this wastes papers unnecessarily. So, the system may help to overcome this problem both from the point of wasting time and source.

Limitations

Time Consuming: Three of the instructors stated that using this system was time consuming. Because, while two of them mentioned that preparation of multiple-choice questions took too much time; two of them indicated that response duration of creating graphics and representing results lasted long.

Design Issues: This limitation is given under three subtopics which are presentation options, showing results before voting finishes and one screen for all. Two of the instructors stated that they preferred to see the results on a bar graph instead of a pie chart. In addition of this, they would like to have an option to choose type of graph. Three of the instructors indicated that they had to use a second screen to show question and choices. Additionally, they wanted to present the question, choices and the phone number that students should send responses on one screen.

Novelty Effect

This topic is found to be not only an advantage but also a limitation. So, novelty effect addressed as a separate topic. Three of the instructors stated that students were excited to use the system. The instructors observed that students engagement and interaction in the classroom increased. Moreover, the instructors mentioned that this attitude of students came from novelty, and one of them especially emphasized this situation as "novelty effect". However, whether these engagement and interaction were only caused by novelty, or not is ambiguous.

Suggestions

Two of the instructors suggested that the system should be integrated with student affairs information system, because they want to use it for absenteeism and grading. One of the instructors proposed that the system may report overall questions and results for each one in addition to statistical results. Moreover, in order to not to waste time in class due to writing questions to the system, one of the instructors offered that the system should be allowed to input the questions previously and activate them just before asking. One of the instructors asked for keeping all data to investigate students' conceptual change during the term. Additionally, one of the instructors suggested that the

system should let instructors choose anonymity or onymous to explore students who give incorrect answers systematically.

Discussion & Conclusion

Overall, according to current study, anonymity, immediate response, availability and usage in crowded classes are the strengths. SMS –based immediate feedback system works without any extra infrastructure and devices anywhere and anytime as well. All instructors agreed that SMS –based immediate feedback system is useful and practical for crowded classrooms. Similarly, Caldwell (2007) defined response systems as powerful and flexible tools that support classroom learning, particularly in crowded classes. The finding of the current study showed that such a system has a great potential to involve students into the learning process for lecture sessions. Related pedagogical principles and strategies will be further discussed.

Design issues were encountered as noticeable weaknesses in current study. Based on opinions and suggestions of instructors, new version of current system will be redesigned and improved. In special, diversity of graphical representation will be increased and web interface of the system will be redesigned to improve usability.

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