

One Click: The CECS Students' Assistant Tools

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Abstract - *This study is pursued because the researchers believe that the design project is more convenient to use in a group discussion as students are expected to gain more knowledge during peer to peer discussion. Through this study, some issues in the traditional way of teaching will be resolved like the time-consuming checking of attendance, quizzes dictation, paying of test papers and the fear of students to participate in recitation*

The researchers used Prototyping model as procedural method for the successful development and implementation of the hardware and software. This method has five phases which include: quick plan, quick design, prototype construction, delivery and feedback and communication.

This study was evaluated by the CECS Students and the assessment of the respondent regarding the software and hardware application was measured in different levels of acceptability such as Accuracy, Adaptability, Effectiveness, Efficiency, Interactive, Portability, Reliability, Security and User-friendliness. The overall acceptability of the traditional way of teaching as evaluated by the respondents is satisfactory. With regard to the evaluation of One Click: The CECS Students' Assistant Tool, the overall acceptability is excellent. Through evaluation, the researchers had determined that there is a significant difference between the levels of acceptability of the traditional way of teaching and the "One Click: The CECS Students' Assistant Tool" in terms of the given set of criteria. The recommendation of the researchers in the design project are as follows: enhance the system where the users/students can go back and answer the previous questions and add an interface where user/instructor can delete files.

Keywords: *CECS Students, One Click: The Cecs Students' Assistant Tool*

I. INTRODUCTION

Today, the birth of modern technology continues to grow and develop. It became a part of every human's life in which people tend to be more competitive in adapting because of several benefits that it provides. It helps people in doing their job easily and also consumes less time in accomplishing certain tasks.

Several discoveries like the wireless technology rapidly change the way we live. Communication with others becomes easier through the use of wireless technology.

Wireless technology can provide many benefits including faster response to queries, reduced time spent on paper work, increased online time for users, just-in-time and real time control and tighter communications between clients and hosts.

Radio frequency (RF) is also an existing wireless technology that transmits data from the keypads to the base stations. A few companies also offer Web-based software that routes the data over the internet (sometimes in a unified system with RF equipment). Cell phone-based systems are also available nowadays.

Radio frequency (RF) is ideal for large group environments; RF systems can accommodate hundreds of voters on a single base station. Using some systems, multiple base stations can be linked together in order to handle a number of audiences. Other systems allow over a thousand on just one base. Because the data travels via radio frequency, the participant merely needs to

be within range of the base station (300 - 500 feet). Some advanced models can accommodate additional features, such as short word answers, user log-in capabilities, and even multi-site polling (what-is-a-response-system, 2011).

Because of the new invention in the technology, the researchers came up with the idea of proposing a study entitled "One Click: The CECS Students' Assistant Tools". They are also curious of what will be the result if they pursue this study - if it will make the instructor and student's life easier and better.

The researchers got the idea of making "One Click: The CECS Students' Assistant Tools" based on what they have researched on internet. They also found out that there is a study about the so called "Clicker". According to their research when it comes to learning, a student clicker is more convenient to use in a group discussion because the students gain more knowledge during peer to peer discussion. With this in mind, the researchers decided to make their students assistant in order to improve the communication between the instructor and the students.

The researchers named their project as "One Click: The CECS Students' Assistant Tools" because they will use a remote in the checking of attendance, giving quizzes, recording their grades. They also realized that it can be helpful in some degree programs of the College of Engineering and Computing Sciences Department.

This study had been commenced and pursued to create a student's assistant tool; using the RF technology as a means of connection between the device and the receiver which will be utilized to create a communication between the instructor and the students.

II. OBJECTIVES OF THE STUDY

This study aimed to develop a "One Click: The CECS Students' Assistant Tools" for the CECS Department. Specifically, this study was guided by the following objectives: to determine the acceptability level of the existing design "traditional way of teaching" and the proposed design "One Click: The CECS Students' Assistant Tools" and its differences in terms of accuracy, effectiveness, efficiency, reliability, security, user-friendliness, adaptability, portability and parallel.

III. REVIEW OF LITERATURE AND STUDIES

Since the 1960s, a number of companies have offered Response Systems, several of whom are now defunct or changed their business model.

Circa 1966, Audience Studies Institute of Hollywood, California developed a proprietary analog ARS system for evaluating the response of a theater audience to unreleased motion pictures, television shows and commercials. This early ARS was used by ASI's clients – major motion picture and television studios and advertising agencies – to evaluate the effectiveness of whatever it was they wanted to accomplish: for example, selling more products, increasing movie ticket sales, and achieving a higher fee per commercial slot. Often, a client would show different versions to different audiences, e.g. different movie endings, to gauge their relative effectiveness. ASI would give out free tickets on the street to bring people into the theater, called the "Preview House," for particular showings where each attendee would fill out a questionnaire and then be placed in a seat with a "dial" handset outfitted with a single knob that each attendee would turn to a position to indicate his or her level of interest. Turning the knob all the way left for "dull" to turning all the way to the right for "great." In 1976, ASI upgraded their system to become fully digital have Yes/No buttons and, in some cases, numeric keys for entering in numbers, choices and monetary amounts(Audience_response).

Audience response technology has evolved over time, moving away from hardware that required extensive wiring towards handheld wireless devices and small, portable receivers. In the 1980s, the Consensor product line evolved towards peripherals that could be plugged into a PC, and a software application to run thereon. Wireless LANs allow today's peripherals to be cordless. Another example of this is Microsoft's Mouse Mischief, a Power Point add-in, which has made it easier for teachers, professors, and office professionals to integrate audience response into their presentations. The advent of smart phones has made possible systems in which audience members download an app (or run it as SaaS in their web browser) which then communicates with the audience response system (which is itself just software running on someone's device, whether desktop, laptop, tablet, or phone)

via the local wireless network, the cellular telephone network, or both. In this model, the entire audience response system is a software product; all of the hardware is what the users brought with them(Cardoso, Walcir)

Clickers (or Classroom Response Systems) are becoming increasingly common in the educational settings, especially in science classrooms and academic lecture settings. Surprisingly, the use of clickers is not as widespread in foreign and second language (L2) education and the number of studies that address the pedagogical potential of the technology in L2 settings is still scarce. One of the goals of this study is to address this gap in the literature by investigating English as a foreign language learners' perception of clickers and the apparent effect that this technology can have on learning outcomes. Overall, the results are consistent with the consensus that students perceive these devices as a positive addition to their classes, as their use increases participation and the general enjoyment of classes, contributes to learning, fosters interaction, and allows learners to self-asses and compare their performance with that of their peers (Cardoso, Walcir).

Student Response Systems (also known as 'clickers') use wireless radio frequency connectivity. It gives instructors and students immediate feedback from the entire class and automates routine classroom activities like taking attendance and grading student work.

In one of Abdallah's article, it describes a Carnegie Scholarship of Teaching Research Project on Reflective Teaching with Technology conducted in the fall 2006 at the University of Massachusetts Lowell under the guidance of the Faculty Institute. The purpose of this project was to enhance student interaction in a lecture based nursing course by introducing a multimedia approach with technology. Specifically, a Personal Response System for students to use remotely during class and student access to the textbook's web site to complete online case studies and NCLEX based examinations. Reflection and evaluation of these technologies and their relationship to students' understanding of course objectives were examined. In addition, students were asked to evaluate the above technology at midterm. The summary of data analysis of student performance on quizzes and midterm examinations and student evaluation of the technology both supported its implementation as being an effective teaching activity that enhanced students' learning. Future implementation of technology into other nursing courses and continued research on the use of technology in the nursing classroom and its relationship to quality education is recommended (Abdallah, 2008).

According to the researches of Kaplan, et.al, the idea that some techniques used for animal training might be helpful for solving human-robot interaction problems in the context of entertainment robotics. They present a model for teaching complex actions to an animal-like autonomous robot based on "clicker training", a method used efficiently by professional trainers for animals of different species. After describing our implementation of clicker training on an enhanced version of AIBO, Sony's four-legged robot, they argue that this new method can be a promising technique for teaching unusual

behavior and sequences of actions to a pet robot (Frédéric Kaplan, Pierre-Yves Oudeyer, Enikő Kubinyi, Adám Miklósi).

The Nan yang Technological University (NTU) cited that the audience response systems or 'clickers' are being used widely in both large and small educational settings. Clickers leverage upon a number of technological affordances to allow for adaptive and flexible learning to be accomplished. To promote active learning in its classrooms, Singapore rolled out a campus-wide initiative called "Learning that Clicks!" on using the interactive technology of clickers. This initiative will enable the necessary transformation of pedagogy and learning design to support the epistemological paradigm shift of becoming more student-centric in nature. This preliminary study attempted to investigate the experiences of undergraduate students in learning in clicker-supported instructional environments. A survey consisting of nine items was administered to 640 students from 12 classes in the Engineering, Humanities and Sciences schools to solicit their views on the effectiveness of clicker technology as an instructional device. Generally, students felt that the use of clickers has improved the quality of their learning experiences. Overall, this study reveals that clicker technology offers great promise in promoting more collaborative and engaging learning environments and innovating instructional delivery, provided lecturers apply sound pedagogical principles in their teaching (connection.ebscohost.com).

Based on Jordan, Eoin, Crofts and Samuel's researches, facilitating a mixture of traditional lecturing techniques and the kind of technology more at home on TV game shows, clicker-based Audience Response Systems (ARS) are currently attracting considerable attention among educators across the world. In a classroom environment, ARS clickers enable students to instantly send information to a central computer, which can then display the responses on a screen. In several disciplines at university level, ARS technology has been shown to improve student performance in tackling in-class concept questions, as well as classroom engagement. Among the few studies specifically connecting ARS technology to language learning, Cutrim Schmid suggested that the engaging nature of clickers can increase interactivity, especially in larger classrooms where interactions between students and teachers are logistically difficult. Furthermore, a study conducted with advanced English learners in a Brazilian language school leads Cardoso to suggest that clickers can increase both motivation and in-class participation. By simultaneously gaining feedback from large groups, clickers can also help to guard against the dominance of a vocal minority, who may give the impression of understanding a particular topic, when in fact the silent majority does not understand at all. Alongside these advantages, Caldwell suggests that the feedback provided by clickers can help to reveal student misunderstandings that lecturers may otherwise be oblivious to. Other benefits mentioned in the literature include their potential to promote self-assessment among learners (Hoekstra) and their ability to break up a lecture and increase student attention.

Based on the study of Margie Martyn, "Clickers in the Classroom: An Active Learning Approach" describes the

benefits of active learning approaches. Clickers, or student response systems, are a technology used to promote active learning. Most research on the benefits of using clickers in the classroom has shown that students become engaged and enjoy using them. However, research on learning outcomes has only compared the use of clickers to traditional lecture methods. Although learning outcomes are higher when using clickers, the question is whether the clickers or the active learning pedagogies are the cause. For this reason, she conducted a study that compared learning outcomes resulting from the use of clickers versus another active learning method—class discussion. Even though both techniques employ active learning, would using clickers increase learning outcomes more than another active learning approach? Two key features distinguish clicker use: clickers provide a mechanism for students to participate anonymously; and clickers integrate a "game approach" that may engage students more than traditional class discussion.

The study also investigated students' perceptions of their learning using clickers versus classroom discussion (Martyn). Response pads, a receiver, and software are used to capture instant data from your students. The system is portable and easy to integrate into any classroom. The student response pads (or "clickers") are small, hand-held devices that allow students to answer questions or show attendance (baylor.edu).

Bluetooth is an open wireless protocol for exchanging data over short distances (using short length radio waves) from fixed and mobile devices, creating personal area networks (PANs). This uses a radio technology called frequency-hopping spread spectrum, which chops up the data being sent and transmits chunks of it on up to 79 frequencies (/Bluetooth-Home.aspx).

Radio Frequency Identification (RFID) technology is nothing new. It dates to around World War II, when it helped Allied forces distinguish their own planes, from those of the Germans and avoid "friendly fire" incidences. After this period of intense use, for many reasons, it remained dormant for years together, until it got resurrected recently (about five years ago) by a few companies, who realized its potential in saving them billions of dollars in their supply chain operations (Polniak).

In this section, the design stage of the process demonstrates the proposed system concept with full detailed and its specifications with the use of diagrams. This stage is one of the highlights in developing the system where the appearance can be more detailed and reliable.

To be able to make the proposed project more valuable, the researchers used the prototyping method. A prototyping methodology is a software development process which allows developers to create portions of the solution to demonstrate functionality and make needed refinements before developing the final solution (Broman, 2009).

Prototyping Model is a systems development method (SDM) in which a prototype (an early approximation of a final system or product) is built, tested, and then reworked as necessary until an acceptable prototype is finally achieved from which the complete system or product can now be developed. This model works best in scenarios where not all of the project

requirements are known in detail ahead of time. It is an iterative, trial-and-error process that takes place between the developers and the users (SearchCio-Midmarket).

The researchers decided to use prototype as their method in making their project because of the following benefits: user can get a clarity and feel of the functionality of the software and he can suggest changes and modifications; the clients can ask for a small prototype to be built based on the developer’s capabilities; and helps to demonstrate the concept to prospective investors to get funding for project, reduces the risk of failure, as a potential risk can be identified early and mitigation steps can be taken, iteration between team and client provides a very good and conducive environment during project, and time required to complete the project after getting the System Resource Planning (SRS) reduces, since the developer has a better idea about how he should approach the project(I Answer 4 U, 2010).

Evaluation

In the evaluation procedure, two hundred fifty five (255) CECS students evaluated the “One Click: The CECS Students’

Assistant tools”. The researchers wanted to ensure if the “One Click: The CECS Students’ Assistant tools” is accurate, adaptable, effective, efficient, interactive, portable, reliable, secure and user-friendly.To find the level of acceptability of the “One Click: The CECS Students’ Assistant tools” as well as the manual process of giving examination, quizzes and taking attendance to the students, the researchers distributed evaluation forms or questionnaire’s to CECS students.

Findings and Interpretation

Prototyping Model which serves as a paradigm of the study. The first step is to gather requirements about the study wherein it signals the start of the development process. Once the requirement analysis is done and design for the prototype is made, it moves on to the evaluation process and refining the prototype based on the evaluation. In this model, going back on the previous phase to modify something is possible and can proceed to the next phase even if the previous phase is not yet finished.

Table 1. Evaluation of the traditional way of teaching in CECS
N= 255

Criteria	5 Excellent (5.00-4.21)	4 Very Satisfactory (4.20-3.41)	3 Satisfactory (3.40-2.61)	2 Fair (2.60-1.81)	1 Poor (1.80-1.00)	WM	VI
Accuracy	2	67	123	46	17	2.96	Satisfactory
Adaptability	5	58	121	55	16	2.93	Satisfactory
Effectiveness	0	69	121	44	21	2.93	Satisfactory
Efficiency	8	55	123	48	21	2.93	Satisfactory
Parallel	0	62	116	54	23	2.85	Satisfactory
Portability	0	65	117	51	22	2.88	Satisfactory
Reliability	4	57	126	47	21	2.91	Satisfactory
Security	1	64	113	55	22	2.87	Satisfactory
User-Friendliness	10	62	112	46	25	2.95	Satisfactory

Average: 2.91 Satisfactory

The model is found to be suitable to the proposed topic because the researchers don’t know all the detailed requirements needed in their study yet. Through the prototyping method, the researchers can also undergo a modification and trial-and-error process until they are satisfied with the result of their study.

SUMMARY OF FINDINGS

This study designed to develop a system that will enhance the way of teaching in the CECS. After conducting test and evaluation, the researchers proved that the “One Click: The CECS Students’ Assistant tools” was accepted by the respondents. They have stated that they strongly agree on the implementation of the new system.

On the development of the system, one has considered the users, the disadvantages of the cost of the system and the possible comments and problems of its critics. Based on the result of the foregoing test, evaluation and comments from the

respondents, the researchers concluded that the “One Click: The CECS Students’ Assistant tools” is more convenient to use than the traditional way of teaching.

The level of acceptability of the traditional way of teaching in terms of Accuracy, Adaptability, Effectiveness, Efficiency, Interactive, Portability, Reliability, Security and User-friendliness are all satisfactory. The overall acceptability of the traditional way of teaching as evaluated by the respondents is satisfactory.

The level of acceptability of the “One Click: The CECS Students’ Assistant tools” in terms of Accuracy, Adaptability, Effectiveness, Efficiency, Interactive, Portability, Reliability, Security and User-friendliness are all excellent. The overall acceptability of the traditional way of teaching as evaluated by the respondents is excellent.

There is a significant difference between the levels of acceptability of the traditional and the “One Click: The CECS Students’ Assistant tools” in terms of the set criteria.

CONCLUSIONS AND RECOMMENDATIONS

The researchers have arrived at several conclusions and interesting observation: The traditional way of teaching needs further improvement; The researchers concluded that “One Click: The CECS Students’ Assistant tools” is much better than the traditional way of teaching; The “One Click: The CECS Students’ Assistant tools” increased achievement exposure to the processes of more effective way of teaching.

It is recommended that the future researchers should conduct a better study that can upgrade the CECS Students’ Assistant tools with a system that can have separated interfaces where the users/instructors can be able to delete files; that further studies be made to enhance the system where the users/students can go back and answer the previous questions. For future researchers, the CECS Students’ Assistant tools or the system must have an indicator where the users can be able to know if the system accepts their answers.

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