SMS- Classroom Feedback Systems

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Abstract

Nowadays, the use of mobile phone by University teachers and students are rapid upward. The mobile technology has an effective role in the society and very fast growing in both academic and industrial sectors. For instance; in the academic sector (universities) the mobile technology modify the traditional (paper-and-pencil feedback of lecturer evaluation by students) toward short message services (SMS) feedback system. The processing environment of the proposed system is return to hardware and software requirements: the minimum hardware requirement is any mobile-phone with SMS facility, Nokia mobile-phone model 6300 Express was used on this research. Furthermore the software that used for designing the proposed feedback system was Visual Basic and Microsoft Access. Thus; the computer department is concerned by the insufficiency of physical feedback or traditional feedback (TF) and their inappropriate results, speed, space, cost and unreliability.The only innovative solution for insufficiency and inappropriate difficulties of traditional approach is implementing a SMS-CFS (SMS- Classroom Feedback Systems). This paper describes the development of a SMS-based communication between the students and the Quality Assurance (QA) manager of the Faculty of Science Computer Department regarding of the lecturers ability evaluation of teaching quality via the application of SMS- Classroom feedback system at Sulamani University, the human reactivity of the developed application was compared with that of TF.

Key words : SMS, Mobile learning, classroom Technologies, classroom interaction, feedback system and QA

1. Introduction:

SMS stands for "Short Message Service" and uses mobile phones to transmit. SMS (or text-message) to and from mobile phones has grown into an extremely popular technique of communication among university of Sulamani students and lectures.

A classroom feedback system can increase the interaction between teachers and students [1]. However, the quality assurance (QA) manager systematizes the activity of SMS-CFS at education Faculty. Additionally the SMS-CFS is an excellent intermediate between students, lecturer and QA manager. That's why students inform the lecturer about subject matter in the lecture-theatre, meaning that it's an excellent idea for QA manager to evaluate the teaching quality and monitoring of students progress during the course. The successful Feedback progress is only permitted for enrolled students in the course. Each and every enrolled student must provide their mobile-phone ownership numbers to QA Manager due to register in the backend (database) of SMS-CFS server. For the reason that unidentified mobile-number to the server it will be ignored to prevent the feedback activity, also the system prevent students who sending more than one SMS. The only student's participants when phone ownership based on the use of mobile handsets by and provides individual responses to questionnaires in an interactive approach [2].

QA manager, teachers and students found out the SMS-CFS is a new educational scenarios and it is mediation between technology and physical classroom or TF.

The role of new educational scenarios is to initiate and maintain an interactive process of presenting educational concept and their possible realization with technological tools to the teachers. Thus, its act as a 'bridge' between the world of teaching and the world of software design [3].

Technology enhances teacher professional development on mobile phones, such as the open source software that allows large numbers of students to provide their lecturers access to instant feedback via SMS [4].

When SMS has been displayed on the server, the lecturer can interactively deal with each message and give feedback to the students in text evaluation [5]. Al previous works were only text message feedback, but the proposed system is combination of both numerical and text evaluation.

The proposed system namely SMS-CFS (SMS-Classroom Feedback Systems) solve the lack of students' careless due to large numbers of the students in classes; rationalize the delay between both assessment delivery and feedback. Otherwise it activates the environment of learning, improves the student's enthusiasm and produces enhanced interactivity in lecture-theatre.

2. Background

In the old generation of simple TF in physical classroom, the feedback were by words of mouth, it was asking questions like" How far you understand this parts " were unclear results and not useful outcomes for both students and lecturer.

The term TF in Computer department means different outcomes to different areas. There are infinite number of reasons why students, teachers and QA manager uninterested to use TF. for example (inefficiency of time and space, unreliable, absence of interaction between the students and teachers, inaccurate results of student monitoring progress, inexact calculation counter for teaching quality by QA manager, etc.

Whilst the wireless communication technologies have absolutely changed the way in which students,

teachers and QA manager do academic activities by using of mobile phone. In this sequence, SMS technology is very useful for higher education to deal with variety of activities in university such as offer feedback [7]. SMS Classroom Feedback Systems (SMS-CFS) is more reasonable and becomes very popular, if compared to other technologies (Bluetooth) because all the others technologies create faults in the communication and very limited in distance and capacity, etc [8].

The essentials incomparability of this proposed system SMS-CFS to the physical classroom feedback; QA manager and teachers are from a better understanding of what their student's recent level of consciousness in a very faster way. Apart from that, the QA manager will easily figure out the quality of teaching. Furthermore the quality of debate in the classroom enhanced for a better teacher awareness of student difficulties.

In the real life, the advantage and disadvantage are two aspects that opposite to each other. The supplementary advantages of the proposed system have an effect role to the better Quality of Service (QoS). The SMS-CFS QoS is more privileged than the TF or physical classroom feedback. So as to avoid some of the minor technical problems such as: mobile-cell uncovers network, mobile-cell jamming, inoperative mobile-handset, and classroom restrictions on using mobile phones. An appropriate and cost-free solution for all the mentioned minor problems is increase an adequate response time of feedback. The longer response feedback duration is preventing the SMS-CFS from minor technical problems; also students will have better chance to participate the activity and QoS will improve because longer time for activity more students be able to participate. Another new contribution of the proposed system is that all students have twelve hours to response all ten question.

3. SMS-Classroom Feedback Systems:

Since students owning mobile phone with SMS facility; they may perhaps easily send and receive SMS (or text-message). For that reason student's feedback activity into the physical classroom has completely modified toward E-feedback. In order to take advantage of this service it was obligatory to install the proposed SMS-CFS software into the QA manager Laptop (server) and enable the mobile number that connects to the server (laptop computer) to receive messages from students while answering the entire questions. Figure-1- illustrates a basic diagram system:

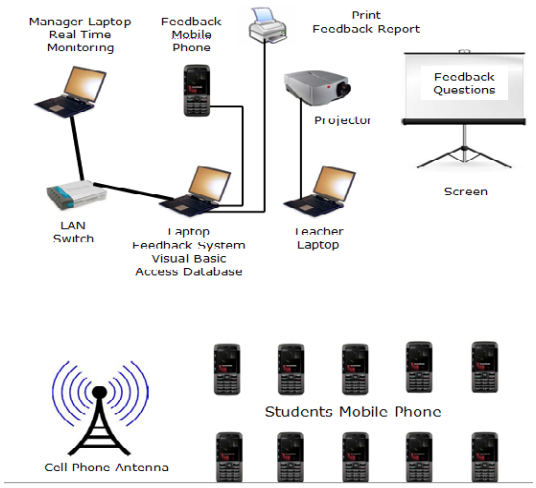

Figure (1) SMS-CFS Infrastructure

SMS-CFS technologies used to allow students to respond all ten questions in a free-form which presented on screen by data show-projector. The participated students must read carefully and respond all questions regarding to the particular teaching model. The numeric evaluation in the system endow with the ability to answer a range of ten presented questions on slideshows with simple numbers start from numbers [1 or 2 or 3 or 4 or 5]. Students must answer each question by one of the mentioned number. Before feedback activity the QA manager should give explanation regarding the numbers [1 to 5] levels. A part from numeric responds, if any student very keen to send a comment they have to send another message in text. Students should press on the C key on mobile keypad before typing and sending comment. Pressing C key differentiate the numeric message to text message and each one store in different field in the backend (database). The numeric respond of ten questions by students only take into account for evaluation the level of teacher capability, but the text responds by students only for concerning the weakness and strengths of the teacher in the class.

The innovative of the proposed SMS-CFS is an excellent channel that whatever students thinking will be on the screen laptop of QA manager. When the feedback time-limitation finished, the QA manager press on calculate button and all received numeric messages could be automatically analyzed in very short time and the final result would be out of five.

4. System Functionality:

1. First of all, students must be registering their own mobile number to the system in the way of QA Manager.

Rationale: system recognition for registered students by their mobile numbers, QA manager entering mobile numbers by using of Ms-Excel for registration purpose and save it on server (computer)

2. All ten questions must display on the Projector screen.

Rationale: to let know students Questions in Detail.

3. Before feedback activity, QA manager must explain to students the regulation of feedback system.
Rationale: The number 1 is mean very poor level, number 2 is mean poor level, number 3 is good, number 3 is very good, and number 5 is mean excellent.
4. All ten questions must be answer by only one number.
Rationale: The numbers [1 or 2 or 3 or 4 or 5] and each number represent different level of teaching quality for the teacher.
5. Students can response by Utilize both time-limit and time-consuming
Rationale: upcoming the accurate result from students, there are two choices for students to assess the teacher: the first one is numeric evaluation and the second is comments evaluation. In order to send comments to the system and let know the QA manager about the teacher ability and attitudes in class by alphabetic (words). Sender must type alphabetic letter of "C or c" before sending comments to the system. "C or c" alphabetic letter as message starting for the reason of the system make a different between Comments and numeric evaluation. Utilized both time-limit (response immediately) and time-consuming (response by several hours) to give better chance, longer time and more freedom to reply. This mean that the consuming-time for the proposed system is suitable due to get accurate response from students the system will recognize phone numbers that registered by QA manager for all enrolled students. The enrolled students phone numbers must be added to Ms-excel and save to the system.
Rationale: apart from all permitted students phone numbers by the system. The rest phone numbers will be ignoring to exceed or neglect exceed.
6. After finished both time-limit and time-consuming, the proposed system start working, the system read all inbox messages (Synchronization)
Rationale: Check for unregistered phone- number and the messages will be neglected by the system.
7. In numeric-evaluation, the system check for answers (numbers: 1,2,3,4 or 5).
Rationale: if the answers number is not the required numbers. The system will neglect that answers. The meaning is that any numbers less than one will be ignore also numbers more than five will be ignore as well. The answer must be between numbers one or two or three or four or five.
8. Message started with "C or c" alphabetic will be recognize as a comment by the system**.**
Rationale: Type the "C or c" alphabetic before sent messages to the system (comment evaluation). It wouldn't affect the numeric evaluation results because the comments will archive in to different field into the system database. Comment only for the information about the teacher.
9. The system will calculate the average numbers of each student answers by click on the calculate button
Rationale: the average of all ten answers for each student will calculate.
10. The over all average of the students answer will automatically calculated (feedback average).
Rationale: final feedback result would be showed on other system interface.
11. Save the results as database report.
Rationale: for archiving purposes the results save it in database.
12. Print the feedback result as report
Rationale: the system will print the final result of the feedback as a hard copy (report). The results include both Comments and numeric. The outcome numeric is only taking into account as an assessment, but the comment-evaluation is for future concentrate of teacher weakness and strengths.

5. Results and Discussion:

The proposed System evaluated by two seminar-evaluations; the first seminar-evaluation took place in the main seminar hall at Sulamani University with nearly twenty participated teachers, but the second seminar-evaluation took place at computer science lecture with nearly fifty participated students. Majority of both teachers and students owned a mobile phone that carried to seminar-evaluations. The general purposes of the first seminar were to offer training for all participated teachers about how to work out to use of the system by their own and testing the essential system process. In the first seminar-evaluation the time-limit of duration twenty minutes had been used for receiving all teachers' messages, but in the second seminar-evaluation the time-consuming of four hours had been using for receiving all students messages. In both seminar-evaluation, the proposed system were calculate the results very accurate and rapidly. The Figures 3, 4 and 5 (Page-6) are test and result interfaces of the second seminar-evaluation. The figure 2 shows all received SMS to the system, Figure 3 demonstrate all discard unallowable phone-numbers and Figure 4 illustrate the final calculation (result). All received messages from students to proposed system will evaluated for calculate the results (by single click on calculate button).
Comments SMS doesn't affect the results of numeric evaluation. But the comments are only archive in to the system and any inappropriate attitude by the teacher must be let the teacher known.
It is obvious the comments typing and sending by SMS takes longer time then numeric for those reason students must response numeric-evaluation. Students designated that the system was very helpful to make classes more efficient, interactive and better communication
The table 1 shows comparability between TF and SMS-CFS. The time limitation to fill the feedback form by students and return it to the lecturer in the classroom is only fifteen minutes, however the time limitation by the SMS-CFS is four hours and it will be a better opportunity for students to fill the

feedback form at outer classroom. Workout results in TF takes more than an hour time with as a minimum of two people working to calculate the feedback results, but the SMS-CFS takes only one seconds. It's obvious the SMS-CFS is errorless and more accurate.

TABLE 1TF and SMS-CFS Comparability results test

	No. of students	Feedback form return time	No. of staff required	Calculation time needs	Error expectation
TF	50	15 minutes	At least 2 people	More than an hours	Yes
SMS-CFS	50	4 hours	Only one person	Only one second	No (correct & accurate)

Finally, the all outcomes from the system provide an excellent idea to become conscious that cooperation between three parts, namely QA manager, students and teachers makes learning strategy enhanced because the system is a perfect intermediate between three parts. Figure 5 elucidate the improvement of learning strategy.

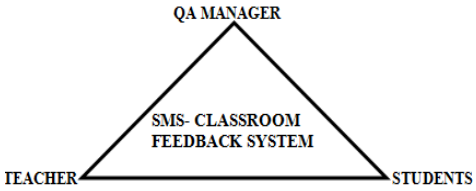

Figure 2 Enhanced Triangle Learning: Students, Teachers and QA Manager

6. Conclusions

Since another new modification introduced in the design of mobile-phone technology, SMS created another generation in mobile-phone build. Newer mentioned generation in mobile build make classroom life and communication style much easier. Communication style by SMS create an active academic bridge between students, teachers and QA manager for the reason of enhance the level of learning and encourage learners to participate toward SMS-feedback system. Despite of face to face (traditional) feedback and electronic feedback tests; the system tested by two seminar-evaluations. After each evaluation the system re-correct regularly to go well with three parts (QA manager, students and teachers) required.

The participated students were registered to the system but the teachers weren't registered and that is why all teachers SMS were rejected by the system. For that reason, before performing the first seminar-evaluation all teachers' phone numbers must added to Ms-excel and save it on the server.

In comparison to the paper-and-pencil feedback, the system solved feedback activities outside classroom by using the time-consuming. The extra time to response will expand the boundaries of the classroom also both comments and numeric evaluation were used to feedback.

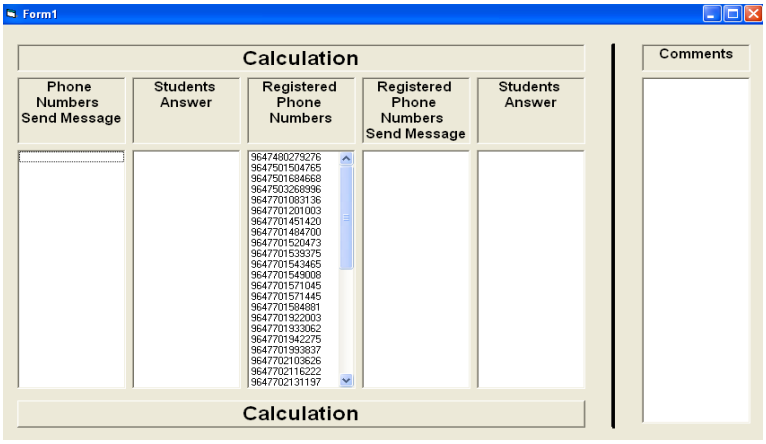

Figure (3) Proposed System after Registration of Students

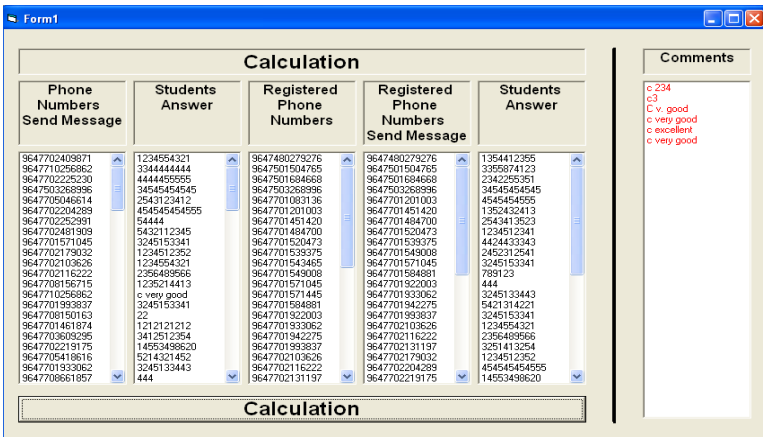

Figure (4) Proposed Feedback System after Calculation

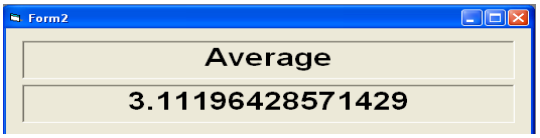

Figure (5) Proposed Feedback System Result (Feedback Average)

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نظام التقييم الصفي بوساطة الرسائل القصيرة (SMS)

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الملخص:

في الوقت الحاضر ، استعمال الهواتف الجوالة من قبل الأساتذة وطلاب في الجامعة ينتشر بسرعة. التقنية النقالة لها دور فعال في المجتمع والنمو السريع جدا ي كلا المجالين الأكاديمي وقطاع الصناعة. على سبيل المثال ، الهواتف الجوالة في القطاع الأكاديمي (الجامعات) غيرت نظام التقييم التقليدي (التقييم بواسطة قلم الرصاص و ورقة تقييم المحاضر من قبل الطلاب) نحو نظام التقييم الطرق التقليدية القصور في النتيجة الدقيقة، السرعة، الفضاء، والكلفة. إن الحل الإبداعي للقصور والصعوبات هو نظام التقييم باستعمال خدمة الرسائل القصيرة بواسطة الهواتف الجوالة داخل الصفوف الدراسية لكي يقوموا الطلاب بتقييم المحاضر، في هذا البحث تم تصميم نظام تقييم الكتروني في الجامعة السليمانية باستعمال خدمة الرسائل القصيرة (اس ام اس) والتي تكون نتائجها دقيقة وسريعة ولا تحتاج إلى فضاءات كبيرة لخزن النتائج وتقليل الكلفة على الجامعة لعدم حاجة النظام إلى أوراق لتنفيذ عملية التقييم.