COLLABORATIVE MOBILE LEARNING: 
A CASE STUDY

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ABSTRACT

This paper describes a case study of collaborative mobile learning in a graduate class doing research in instructional technology. To support the face to face sessions in the classes, SMS, a free collaborative online group and web pages were used. Students were interviewed to seek their perspective of the technology used. The analysis of the responses in the on-line collaborative group and SMS show that collaborative mobile learning can be used to support classroom learning, and to motivate students to improve themselves when they are at a distance.

INTRODUCTION

Various forms of technology have been used to assist teaching and learning; such as, interactive multimedia software; information systems; publishing and presentation tools; and collaborative communication tools (Attewell, 2005). At the same time, more sophisticated and portable devices, like Personal Digital Assistants (PDA) and smart phones are becoming easily available. Mobile tools and technologies may have the potential to address many problems that learners are faced with such by providing learning anywhere and anytime (Attewell & Stead, 2006; Harrison, 2004; Kadyte, 2003; Saedah Siraj, 2005). However, the main issue to successful use of technology is in effective teaching and learning, and not how complicated or useful a new technology is.

There has been a number of research to show that the use of SMS in mobile learning can assist and improve learning and assist in learning (Attewell, 2005; Attewell & Stead, 2006; Harrison, 2004; Kadyte, 2003; Saedah Siraj, 2005; Saville-Smith, 2006). Hence, in this study, SMS is used to develop a collaborative and mobile learning environment. The results of this study will be useful to decide if future programs could be managed better using this form of environment. The use of collaborative and mobile learning, if successful, could be applied to other courses offered in institutions of higher learning.

PURPOSE OF THE STUDY

This study seeks to find out whether the use of a mobile technology through short text messages or SMS, could improve the learning environment, and encourage and support the processes of learning in a research course.

Research Objectives

This study is to identify to what extend can SMS be used in a blended distance learning in a course on research in instructional technology.

Research Question

1. Is SMS useful in learning the process of research?
2. Does the use of SMS encourage the improvement of students' ICT skills?
3. Does SMS encourage further reading and reflection in the research process?
4. What were the students’ habits on receiving the SMS?
5. What was the students’ perceptions of the SMS received?
LITERATURE REVIEW
Computer Mediated Communication (CMC) is all forms of two-way interaction using the computer (Inglis, Ling & Joosten, 2002). It involves both the mechanisms for the delivery of information and the process of social interaction (Romiszowski & Mason, 2004). CMC is "the process by which people create, exchange, and perceive information using networked telecommunication systems that facilitate encoding, transmitting and decoding messages" (December, 2007).

Collaborative learning
Collaborative learning can be defined as the acquisition of new knowledge, skills and attitudes occurring as a result of interactions in a group (Kaye, 1992). The process of group interaction contributes to knowledge acquisition.

The main aspect of collaborative learning is maintaining a shared goal or purpose (Paloff & Pratt, 1999). It is found that reporting to the group and sharing information on articles, books and websites can achieve the goals of learning, and enrich learning for the whole group. In addition, group work can be done in a meaningful manner with feedback and online meetings to engage in knowledge generation.

Tools for collaboration
Online conferencing forums enable communication for collaboration. The free online conferencing tool used in this study is the Yahoo Groups, an asynchronous online discussion forum. Messages posted on the group can be emailed to members who choose to receive emails from the group. In addition to sharing experiences, requesting for help and giving guidance online, the group allows sharing of files.

Another collaborative online tool used is the Seedwiki. A wiki is basically a website that anyone can edit. It is an online writing environment that enables collaboration among a group of people in an online environment (Challborn & Reimann, 2005). Using a Seedwiki does not require much technical skills, so a community of learners can easily work together and contribute to a piece of work (Lim, 2006). In fact, any online viewer can edit and contribute to the online content. It is beneficial in education and it enables brainstorming and exchanging ideas in developing web pages (Challborn & Reimann, 2005).

Users of CMC may lack the skills involved in the use of these tools, so a support system should be in place to ensure that technical difficulties encountered can be handled with a minimum of interruptions to the process of acquiring knowledge and skills (Jonassen, 2000). A user-friendly interface, which is easy to use would ensure that there is little resistance in adapting to the system (Jonassen, 2000). In addition, the users of CMC should possess sufficient skills in language and typing (Jonassen, 2000) to ensure fluency and flow of ideas.

CMC is different from face to face communications as there are no non-verbal cues (Jonassen, 2000) to abstract meaning, such as facial expression and voice intonations. This may sometimes lead to miscommunications. There might also be difficulties in getting prompt response to the discussions (Jonassen, 2000). Within a conference group, there might be individuals who do not contribute to the discussion because of communication anxieties, personal social insecurities or technophobia (Jonassen, 2000). The lack of social cues in this form of communication may make it difficult to interpret information leading to these feelings.

Both the Seedwiki and Yahoo Groups used in this study require access to a computer, which the user may not have all the time. However, almost all graduate students have mobile phones and text messaging through Short Messaging System (SMS) is readily accessible.

Mobile learning
Mobile learning was seen as the acquisition of knowledge and skills anywhere and anytime (Saedah Siraj, 2005; Geddes, 2004). The use of portable mobile devices, like the mobile phone or Personal Digital Assistants (PDAs) enable learning to occur when the learner is on the move, or when he has free time on his own.
There has been many documents of the benefits of using mobile devices such as portability, ease of use, ability to support the in-class learning process, potentials in consolidation and assessment of knowledge and promoting independent learning (Attewell, 2005; Saville-Smith, Attewell & Stead, 2006; Colley & Stead, 2003, Harrison, 2004)

Mobile learning also enables the privacy of working at one’s own time and place (Colley & Stead, 2003; BECTA, 2004; Kadyte, 2003; Saedah Siraj, 2005), as well as in a collaborative virtual environment (Colley & Stead, 2003; Attewell, 2005). Feedback can be given immediately to the learner (Attewell, 2005; Dawabi et al., 2003; O’Nuallain & Brennan, 2004).

The use of mobile technologies has also been used to encourage the use of information communication technologies (ICT) and to bridge the digital gap (Attewell, 2005; Brown, 2005). In fact, learners have reported increased confidence in the use of personal computers and other ICT skills, and are able to support new users (Colley & Stead, 2003).

**METHODOLOGY**

**Sample**

The sample of the study were the 19 students registered for a course in Research in Instructional Technology in the first semester of 2006/2007 session for the Masters in Instructional Technology (MIT) program. This paper is compulsory to be taken by all MIT students in the Faculty of Education in University Malaya. The class was scheduled on Saturdays, and the first and third Saturdays of the month were non-working Saturdays for the faculty. In that case, the class would only meet seven times for face to face sessions. This meant that a lot of the communications and interactions would have to be done online the rest of the time after the face to face sessions.

**Design of the Study**

The needs of the students in the class were identified through discussions and interviews. The tools used were: a free online group, Yahoo groups for class discussions and postings of messages related to the course; a Seedwiki page (see Figure 1) for the postings of individual assignments (see Figure 2) and work in progress, initiated by the students; and the use of text messages (SMS) for snippets of related content, reminders and support on the assignments done based on the postings on the Seedwiki. A free online group, Yahoo group was initiated for communication and collaboration, where students would share their ideas, work and discuss their research and problems that they had. The assignments were posted on the Seedwiki, a free online web site meant for collaborative work.

The class was expected to be actively participating in online discussions in the Yahoo groups, and actively planning and managing their assignments on the Seedwiki. At the same time, they were expected to collaborate in their assignments. However, by the second class in the third week, it was observed that there was a lack of interaction, judged by the number of postings of messages, on the Yahoo groups. As the result of the low interaction in the online discussion groups and Seedwiki, it was assumed that the class was not actively participating in learning. To ensure that students were thinking and making connections in the class at a distance, another technological tool was used: The use of short text messages or SMS.

![Figure 1: Class Seedwiki](image-url)
**Nature of Test Messages**

The purpose of text messages in this study was to deliver the following:

- Content related to research methodology
- Reminders related to class and assignments
- Support related to ongoing assignments

Some examples of SMS sent are in Appendix 1.

**FINDINGS**

**Use of SMS in Learning**

A large majority of respondents stated that the SMS messages are useful as reminders as it has helped remind them of the deadlines in task and assignments. More than half pointed out that it helped them learn new content about research while half of them agreed that it helped them to learn the process of research. Interviewed analysis also shows that the majority stated that SMS messages helped to learn the process of learning, while only about half said that it helped in knowledge acquisition.

**Improvement of ICT skills**

Half of the respondents pointed out that the SMS messages have helped them in learning ICT skills, while almost half agreed that it helped them to learn how to access and use the Yahoo groups, and a smaller number agreed it was helpful of using the Seedwiki. Respondents who disagreed that it helped them in the above areas were probably skilled and confident users of ICT.

**The Process of Research**

Half the respondents were in agreement that the SMS messages have encouraged them to read more on their research area and research methodology. They also stated that it encouraged them to read the online assignments on the Seedwiki page. Only a small percentage, four respondents felt that they were not encouraged to read more on research methodology, which was surprising as the messages were mainly content material on research methodology. This could mean that the content given or covered in class was sufficient and that students felt that they had sufficient knowledge in the subject.

A large proportion of the respondents pointed out that the SMS messages have made them reflect on the research questions they wrote while more than half also agreed that it has made them reflect on their problem statement. The majority of them also agreed that it helped them reflect on their literature review.

**Responses to the SMS Received**

More than half said that they read the messages at a time convenient to them and read the SMS messages more than once. Further investigation would have to be done to see if it was because they had problems understanding the message, or that they did not find it useful.
However, almost all always read the messages. A third responded that they did not reply to the messages within the day, while a quarter would reply within the day.

**Opinions on SMS Messages**
A large majority of the respondents said that they did not reply to the messages because they did not understand the message, or that they did not find the message useful. Almost half of the respondents also disagreed that the reason they did not reply to the messages was because they did not know what to reply.

This would mean that most of the respondents could understand the messages that were sent and found them useful. They knew how to respond but other factors may have prevented them from responding. These factors would need to be further investigated. Money was not an issue for respondents not replying.

Almost three quarters of the respondents wished to use SMS in the class for learning while almost all would like to use it with an online collaborative group like Yahoo and Seedwiki.

**DISCUSSION AND CONCLUSION:**
SMS were useful as reminders of deadlines in task and assignments. However, learners perceived that it could be used to learn new content about research. This is in line with the opinion of researchers who have used text messages to deliver content (Attewell, 2005; Attewell & Stead, 2006). In this research, content in the form of important points and tips to remember the process of research methodology was pushed to the learners. The learner could make enquires and obtain immediate feedback on his areas of concern (Attewell, 2005; Dawabi et al., 2003; O’Nuallain & Brennan, 2004).

SMS can also be used to learn the process of learning and to acquire knowledge. Content must be delivered in small chunks of information so as not to overload the learner. Reading from a small screen may prove difficult for more mature learners. Learning should be a continuous process and supported by an expert. However, learners are not sure whether SMS can be used to learn about the research process. This is because the learner has been given the content regarding research, and the opportunity to plan his research. The learner has not carried out the full process of research and so that he feels that he is not involved in the research process.

SMS messages can be used to aid the learning of specific ICT skills, such as the use of online groups and seedwiki. During the course of the interactions through SMS, learners who had specific difficulties in using the collaboration tools made enquires and were given assistance online and through SMS so that they could register, and use the tools. The acquisition of ICT tools were aided through the use of mobile communications (Attewell, 2005; Brown, 2005).

SMS can encourage the students to do further reading in the area of research, and reflect on their research questions, problem statement and literature review. The content which was delivered were referenced from a research methodology book. In addition, when reminders was given on the work in progress, the learners were encouraged to read up on their area of research.

On the habits of reading the messages, many read the messages at a convenient time and many read the messages more than once. This was in line with the fact that learning could be carried out in the private (Colley & Stead, 2003; BECTA, 2004; Kadyte, 2003; Saedah Siraj, 2005). However, most would reply to the message within two days.

The reason for no reply to some messages was not because respondents did not understand the message; or the message was not useful; or they did not know what to respond. Money was also not an issue on not sending a reply. As stated by Jonassen (2000), learners did not communicate because of insecurity that their response might not be acceptable, and the lack of social cues to encourage the appropriate response.
SMS could be used for learning with collaborative online tools like Yahoo groups and Seedwiki. The learners perceived that it could be used effectively together. Looking at the amount of work done and uploaded on the Seedwiki in response to the SMS sent, text messages encouraged participation in the collaboration process.

REFERENCE


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