



EFFECTIVENESS OF USING TEXT MESSAGE/ SMS TO SUPPORT THE TEACHING-LEARNING PROCESS IN DISTANCE EDUCATION

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Summary

Mobile phones are the new addition to the Information and Communication Technologies for learning. The SMS (Short Messaging Services) provided by the Mobile phones could be used effectively as a supporting tool for teaching-learning process. The pre-post single group experimental study was conducted on the Master students of Instructional Design using SMS as a supporting tool for learning some new concepts related to competencies of Instructional Designers. The SMS were planned as Quiz, Games, Motivation and Tips. It was planned as a supporting tool for the learning material developed on the concepts.

The t-ratio for the significance of the difference between pre and post tests scores was 9.3 and was significant at .01 level. This implies effectiveness of SMS as learning tool.

Learners opinions about the SMS was also studied under 4 categories:

Participants' opinion, as learners, on the learning experience through SMS activities

Participants' opinion, as learners, on the use of SMS for learning

Participants' opinion, as learners, on the mobile network while learning through SMS

Participants' opinion, as ID, on the use of SMS as a learning tool

Participants found SMS as a "Good" tool on all these categories. (on a Rating Scale of Excellent, Good, Average and Poor).

Similarly, the participants' preference for the type of SMS and characteristics of SMS were also studied. It was found that participants preferred Quiz and Games the most. They also gave very high score to the "Fun" characteristic (as compared to convenient, time saving, flexible and effective).

Introduction

Electronic or e-learning incorporates all forms of online instruction using electronic devices. Among the many forms of E-learning, m-learning or mobile learning is the new addition to its vast possibilities. M- Learning is facilitated by the use of portable computing devices, like mobile phones, PDAs, palmtops, smart phones, and tablet PCs (E-learning India, 2007).

India has emerged as 'a global leader in mobile connectivity' (Mahajan, 2006). India's alliance with cell phones started in the mid-1990s, as the mobile revolution took hold and India had just 10 million mobile and landline connections. Growth then soared in the last four years due to regulatory change and falling costs of calls and handsets. (Reuters, 2006)

Features of a Mobile Phone

Basically, a mobile or cellular telephone is a long-range, portable electronic device for mobile communication. In addition to the standard voice function of a telephone, current mobile phones can support many additional services such as SMS (Short Message Service) for text messaging, e-mail, packet switching for access to the Internet, MMS (Multimedia Messaging Service) for sending and receiving images, rich text, audio, photos and video and EMS (Enhanced Messaging Services) which allows user to integrate text, audio, pictures, video and animation.

M-learning

M-learning is the exciting art of using mobile technologies to enhance the learning experience. It refers to the use of mobile and pocket IT devices, such as PDAs, mobile phones, Pocket PCs, laptops and the Internet in teaching and learning process. It helps people to learn and gain information just from their pocket devices. M-learning offers an effective way to communicate:

- With the learners who are widely dispersed,
- In promotional and awareness campaigns,
- For emergency employee training,
- In collaborative projects and fieldwork. (*Tribal CTAD, 2008*)

Short Messaging Service / Text Message

Cell phone SMS are software applications that lets one get in touch with other SMS users via short text messages. Messaging is a common feature on cell phones, today. Nearly every phone in the market, today, can send and receive text messaging. (*Bill Schnarr, 2004*)

S-M-S, was defined as the part of the GSM series standard in 1985 as the means of sending text to and from GSM mobile handsets. When it was conceptualized, no one thought it would be used for sending text messages. In fact, the first text

message was sent as late as 1992. Soon, it became a popular means of communication and gave a cell phone a different dimension altogether. By early 2000, it became one of the most used applications in a cell phone (*PC Quest, December 2007*).

SMS has three basic elements:

- **SMS size**

SMS was designed to deliver short bursts of data such as numerical pages. To avoid overloading the system with more than the standard forward-and-response operation, the inventors of SMS agreed on a 160-character maximum message size. Length limitations may vary depending on the network, phone model and wireless carrier. Some services automatically break any message into chunks of 160 characters or less. Therefore, the user can type and send a long message, but delivered as several messages. (Hord, 2005)

- **SMS communication**

There are no standard rules used while writing an SMS.

SMS Shorties

SMS has evolved from the shorthand use in Internet chat rooms to accommodate the small number of characters allowed and as a convenient language for the small keyboards on mobile phones. The objective of *txt* is to use the fewest number of characters needed to convey a comprehensible message.

Emoticons

Many moods can be expressed through 'Smileys' which is also used in online chat rooms. In an SMS, they are replaced by alpha-numeric characters and punctuations.

- **SMS text input**

Almost every Mobile phone has a keypad which is denominated as - 0 = none, 1 = none, 2 = ABC, 3 = DEF, 4 = GHI, 5 = JKL, 6 = MNO, 7 = PQRS, 8 = TUV, 9 = WXYZ. These keypads can also be used to type a message. It provides the following benefits to the user:

- **Adaptive Text Features** - T9 Text Input learns and automatically adapts to an individual's preferences and language patterns to provide the following capabilities:
- **Next word prediction** - Beyond predicting and completing words, T9 Text Input predicts entire phrases based on the phrases typed most often. Phrases such as "call me at home" can be entered with just a few keystrokes, helping users to type less while actually sending more messages.

- **Word order preferencing** - Adjusts the order of the words based on user preference and prior usage.
- **Enhanced word completion** - Allows users to more easily type in unique words, including chat phrases, email addresses and URLs.
- **User added words** - Allows the user to easily store and use favorite slang, abbreviations, codes and "emoticons."

Web SMS:

SMS messages do not require the mobile phone to be active and within range. They can also be sent from a website but there are a few restrictions- like the SMS size is only 90 characters, etc. The sites that allow sending free SMS, either after free registration or directly are – Indyarocks, Yahoo, Rediffbol and 160by2 amongst others.

Review of Research:

Results of the study by Dye, Aleksander (2005) showed that 86% students, who were mostly from non-technical background and in the age group of 25-50 yrs, found mobile as easy equipment for learning. 70% enjoyed the mobile learning experience, whereas 54% students would take another m-learning course.

Evans, (2008) suggests that the use of podcasts as a revision tool has clear benefits as perceived by undergraduate students in terms of the time they take to revise and how much they feel they can learn. Coupled with the advantages of flexibility in when, where and how it is used, podcasting appears to have significant potential as an innovative learning tool for adult learners in Higher Education.

Balasundaram and Ramadoss, (2007) focused on using SMS for answering 'short words-answers' types of questions and evaluating them using simple matching process, providing enough feedback. The results proved that SMS can be used as an aid for answering short-answered type of questions.

Caudill, (2007) proposed three possible models of information exchange via SMS, one that involves the educational institution sending out information about their schedule, one in which the student requests information as they need it, and third where the student is involved interactively with the learning environment.

Shih, (2007) combined an innovative learning model for mobile learning with an established literature class and the results proved that this model was effective for teaching learning process.

Young, (2007) concluded that SMS text messaging provides the most appropriate technology to address the issues to support students in distant placements and reduce feelings of isolation whilst on practice.

Yousuf, (2007) found that mobile learning can improve the entire distance education by enhancing ways of communication among distance learners, tutors and supporting staff. The biggest advantage of this technology is that it can be

used anywhere, anytime and its usage is easy access to a larger number of distance learners.

Kadirire, (2005) showed that SMS can be successfully used in group discussions, be it in schools or business. It preserves anonymity, which allows people to articulate their views without fear of being criticized and is relatively easy to use.

Stone, A., (2004) studied 'Mobile scaffolding to support first year university students'. In this study, SMS text messaging was used as an experimental method of providing a form of "mobile scaffolding" at a fundamental level to support students in managing their time and activities in both physical and virtual space and guide them towards independent self-management; i.e., creating a personal mobile support context for learning and doing. The experiment suggested that such provisional guidance can be supported partially with consideration.

Objectives

1. To prepare learning sessions to provide guidance through text message/ SMS
2. To test the effectiveness of using text message/ SMS to support teaching-learning process in distance education
3. To study the opinions of sample towards learning through text message/ SMS

Hypothesis

There will be a significant gain in the achievement after using SMS as a supporting tool for learning new concepts.

Methodology

For the present study pre-post Single Group Experimental design was employed.

Variables

'Use of SMS' as an instructional strategy was the independent variable and Students Achievement was dependent variable.

Sample

Twelve final year students of Master programme in Educational Technology were selected for the study.

Tools for Data Collection

Two parallel tests of achievement, based on the content "Instructional Design competencies - IBSTPI" were developed by the researchers. An Opinionnaire was developed to study the opinions of the students about SMS technology.

Development of Learning Material

Since, SMS was used as a supporting tool; content was provided in the form of learning material. The content included the sub-topics – IBSTPI, Code of Ethical Standards for Instructional Designer, Competency (as a concept) and Instructional Designer Competencies.

Preparation of SMS messages

The experiment was planned to support the developed learning material on Competencies of IDs as per IBSTPI. Accordingly, messages were planned using games, quizzes, tips, information, etc. Accordingly, a 10-day programme of sending SMS was planned as follows:

Day 1	Welcome, Instructions for Treasure hunt. Treasure Hunt Clue 1, Treasure Hunt Clue 2, Treasure Hunt Clue 3, Treasure Hunt Clue 4
Day 2	SMS motivator 1, Treasure Hunt Clue 5 Winner Announcement, SMS Tip
Day 3	SMS Quiz 1, SMS X Info, SMS Quiz 2, Instructions, SMS Tip 1
Day 4	SMS Tip 2, SMS Quiz 3, SMS Tip 3: Motivator, SMS Tip 4
Day 5	SMS X Info, SMS Quiz 4, SMS Quiz 5
Day 6	SMS Tip 5, SMS instruction,
Day 7	SMS Tip 6, SMS instruction, SMS instruction SMS Quiz 6, SMS Quiz 7, SMS X Info, SMS Tip 7, SMS Quiz 8
Day 8	SMS game (Find out the First letter) instructions, SMS Quiz 9, SMS Quiz 10, SMS Quiz 11, SMS Quiz 12, SMS Quiz 13
Day 9	Results, SMS Quiz 14,
Day 10	First Letter Results, SMS x info, SMS Quiz 15, Answers To Quiz 15, SMS Wrapping Up

Experiment:

A pre test on the content was administered to the students. There were 13 students to take the test. One student was found to have more than 80% mastery on the topic so she was excluded from the experiment. This made the sample size as 12.

The students were provided the learning material on the content selected. The input by SMS was started for the next ten days as shown in above plan.

After the 10-day sessions via SMS, posttest was administered. Immediately, after the post test, Opinionnaire was administered.

Analysis

The data collected through pre and posts tests from 12 participants is tabled below:

Table 1: Pre and Post test scores on Achievement test

Pretest	Posttest
8	18
10	17
10	18
7	11
8	16
8	16
9	13
11	15
10	17
4	11
8	18
9	17
Mean: 8.5	Mean: 15.6
SD: 1.8	SD: 2.5

The value of t-ratio was 9.3, which was significant at .01 level. This signifies that the SMS was found effective as a supporting tool in teaching learning process.

Analysis of Responses to Opinionnaire

Category 1: Opinion on the learning experience through SMS activities

The Average score for the category is 55.7, which indicates that the learning experience is rated as 'Good'.

Category 2: Participants' opinion, as learners, on the use of SMS for learning

The Average score for the category is 29.6, which indicates that the use of SMS for learning can be rated as 'Good'.

Category 3: Participants' opinion, as learners, on the mobile network while learning through SMS

The Average score for the category is 9.8, which indicates that the mobile network can be rated as 'Good' during the learning experience.

Category 4: Participants' opinion, as ID, on the use of SMS as a learning tool

The Average score for the category – 43.5 falls under the rating 'Good', i.e. SMS is a 'Good' tool for learning.

Opinion about the types of SMSes used during the sessions:

All the 4 types viz. Quiz, Motivation, Tips and Games, of SMSes were scored more than 80%. But the participants liked Quizzes and Games played through SMS, the most.

Opinion on the SMS characteristics as Learner

Convenient (62.5%), Flexible (68.8%), Time Saver (64.6%), Effective (60.4%) and Fun (81.3%) were the characteristics of SMS listed. The fun element of SMS has scored the highest percentage. This might be because it is comparatively a new tool for learning. So, participants' curiosity and interest in the activities might have added up to the fun.

Opinion on the SMS characteristics as ID

Convenient (68.8%), Flexible (77.1%), Time Saver (75%), Effective (64.6%) and Fun (87.5%) were the characteristics of SMS listed. The effective element of SMS has scored the lowest percentage. This might be because with some limitations, like, the restrictions on length of SMS, etc. it cannot be used a stand-alone teaching tool.

There is not much difference in the scores obtained for each characteristic of SMSes from the participants' opinions as learners and as ID.

Findings:

Mobile phones or rather SMS is being widely used by youth today as a means of communication. Also, the research has stated that there are many universities where SMSes are used for teaching or learning activity.

Although, in India, it is a new trend, the research findings suggest that SMS can be used as a supportive tool for teaching. It can be used as an aid to learning material or textbooks. Important instructions and guidelines can be supported via text messaging.

Educators can find SMS as an effective medium of communication with students and can also explore different facets of SMSes to aid the process of learning. From an Instructional Designer's perspective, SMS offers a lot of scope for reflective learning and improving analytical and visualizing skills.

Though, the cost per SMS can be a restrictive element, there are many Web SMS sites that provide for free SMSes, which can be used in place of a mobile phone. In this case, however, one needs to be dependent on the internet to send SMSes.

The key difficulty faced during the Sessions was that of adjusting the text information within the mobile specific SMS character length. This asks for both creativity as well as time from the tutor as well as learner. While using SMS as a learning tool, it was found that instructions should be clear and specific besides being short and concise.

On a whole, SMS is very flexible, time saving and interesting tool and can be effectively used for distance education courses.