

The Viability of Mobile SMS Technologies For Non-Formal Distance Learning In Asia

Subtheme: Promoting Education For All

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Abstract

We are currently implementing research on the effectiveness and commercial viability of using short-messaging (SMS) technologies in Mongolia and the Philippines. The use of “text messaging” has been phenomenal and has been growing exponentially in these countries.

The research will answer the following: How feasible would it be to use SMS for non-formal distance education? What are the factors that would motivate or hinder people to use SMS for distance education? What would be the best marketing, design and instructional design strategies to promote, attract and sustain SMS-enabled distance education programs?

Most people in the two countries use it for communication purposes. But the ubiquitous presence and use of SMS means that there is great potential for this technology to be used in more productive ways. It is important for educators to tap into this access model and research its feasibility as a mode of instruction in distance non-formal education. Providing simple courses through SMS would potentially have effects of adding knowledge, enhance work performance, and instill a sense of pride and accomplishment.

Introduction

The phenomenon of Short Messaging Services (SMS) or “texting”, is one that has been growing exponentially in many countries in Asia. This study will be conducted in two countries, the Philippines and Mongolia, where the technology has been noted to have the most promise, in terms of using texting as a possible tool in providing education. Table 1 gives a summary of some key demographic indicators in the two partner countries, specifically those on education. The Philippines has been consistently referred to as the texting capital of the world, and has especially taken to this technology in a big way. It is estimated that around 200 million text messages a day are sent in the country! SMS technology has particularly taken root in the Philippines and in Mongolia because of the relatively low costs of purchasing a mobile phone, the inadequacy of landlines, and government policies of opening up the telecommunications sector.

General Statistics	Philippines	Mongolia
Total population (2002)	80,000,000	2,587,000
GNI per capita (2002)	\$1,030	\$430
Population below poverty line	40% (2001)	36.1% (2004)
Population living below \$1 a day	14.6% (2001)	13.9% (1995)
Literacy Rate	95.9% (2003)	97.8% (2002)
Adult Male Illiteracy Rate	4.9% (2000)	1.4% (2000)
Adult Female Illiteracy Rate	5.2% (2000)	1.7% (2000)
Population growth rate	1.92% (2003)	1.54% (2000)
Average primary school completion rate (2003)*	66.94%	108.40%
Average high school completion rate (2003)	58.62%	-

*Table 1. Some key demographic and educational data on the Philippines and Mongolia. (Sources: UNDP, World Bank, Phils. Department of Education; * Primary school education in the Philippines is 6 years, for Mongolia, it is 4 years).*

The mobile phone has evolved from just being a status symbol or a communications tool. A lot of innovative uses for SMS have been employed in the Philippines. Today, one can reserve airline tickets, join a raffle, remit money from relatives overseas and even follow your favorite soap opera. This technology is also gaining rapid popularity in Mongolia. As this landlocked Central Asian country steadily moves towards a market economy, the government has become committed to developing a more efficient telecommunications network. According to Budde (2005), there are currently around 400,000 mobile phone users in a country of 2,587,000, or a penetration rate of 14%. In these countries where mobile phones with prepaid service are cheaper and more easily available than wired phones, "texting" (which costs less than calling), offers a mode of communication that is within reach of almost everyone. This is in comparison to computers and the internet, wherein their uses and effects on education are already well-documented, but still remain out of reach for a large segment of the countries' populations. Tables 2 and 3 illustrate these facts.

Key ICT Indicators	Philippines	Mongolia
Number of landlines	6,700,000 (84 per 1000)	138,000 (53 per 1000)
Access to Internet	5,000,000 (6.25%)	40,000 (1.54%)
Personal computers per 1000 people (2002)	27.7	28.4
Average Cost of a PC	\$ 350	\$ 400
Average Cost of a DSL Subscription	\$ 54/month	\$ 39/month

Table 2. Some key ICT data on the Philippines and Mongolia. (Sources: UNDP, World Bank, ITU).

Mobile Phone Indicators	Philippines	Mongolia
Population with mobile phones	35,000,000 (2005)	400,000 (2005)
Percent of pop. w/ a mobile phone	27%	10%
Number of Providers	3	2 (1 GSM, 1 CDMA)
Number of Government-owned Providers	0	0
Cost of sending 1 SMS message	PHP 0.50-1.00 (USD 0.02)	MNT 6.00-20.00 (USD 0.01)
Cost of receiving 1 SMS message	free	free
Cost of a voice call	\$ 0.12/min	\$ 0.16/min
Cost of average mobile phone	\$ 80	\$ 85
Average Pre-paid card cost	\$ 5.50 for 40 mins	\$ 12 for 40 mins
Current educational SMS initiatives	Yes (UPOU)	No

Table 3. Some key mobile phone data on the Philippines and Mongolia (Sources: UNDP, World Bank, ITU, ICT4D.ph)

Most people use SMS mainly for communication purposes. But the almost ubiquitous presence and use of SMS in many urban and rural areas, and across different socio-economic and gender lines mean that there is great potential for this technology to be used in more productive ways.

The Dakar Framework for Action, which was drafted during the World Education Forum (2000), states that ““Information and communication technologies (ICTs) must be harnessed to support EFA (Education For All) goals at an affordable cost.” Distance education using ICTs is one way of bringing education to more people, and SMS technologies have the potential to be an cost-effective tool for this purpose. Since this technology is already available in many areas of the Philippines and Mongolia at almost all levels of society, it would be important for educators to tap into this vital access model and research its feasibility as a mode of instruction in distance non-formal education. The small size of the screen, expensive and slow access speeds to the internet, and features such as Java-based browsing and mobile PCs found in expensive phone models, hinder the effective and equitable use of such technologies for more content-heavy formal education courses. However, the greater mobility and lower cost of most mobile phones compared to computers means that there are more people in the region who can afford and make use of the technology. For those in the lower socio-economic classes, many of whom have not completed formal education, providing educational materials and courses, albeit simple, would potentially yield positive results, in terms of adding knowledge, improving their attitudes towards themselves and to society, and could enhance their performance at work, and instill a sense of pride and accomplishment. The use of SMS as an instructional content delivery and assessment tool for non-formal education would be more practical, as access to other ICTs such as computers and the Internet are still limited for most of the participants of non-formal learning, like the out-of-school youth and adults (Belawati, 2003). Most donated computers and other ICT infrastructure are given to the formal education sector, in the elementary and secondary schools.

As yet, there has been no comprehensive research conducted on the uses of SMS-enabled distance education programs in the Asian region. A survey done by Farrell (2003) of programs in the Asia-Pacific region that make use of ICTs for non-formal education lists technologies such as the Internet, computers, radio and video as tools that are being used for the purpose; SMS is not mentioned. In the Philippines, there are some distance education initiatives that make use of SMS in one form or another. There is the BridgeIT or “Text2Teach” Program, which delivers digital learning materials to schools using mobile technology. This program involves the use of SMS as an interface between teachers, schools and the content providers (video clips, satellite TV, tapes), wherein the schools text the providers as to the learning materials that they need. The University of the Philippines Open University has recently offered an SMS-based distance education program and has developed modules on such topics as English grammar and personal health. However, more rigorous studies to determine the efficacy and feasibility of actually delivering educational content through SMS are still lacking. Thus, there is a need to undertake this study.

We therefore need to ask the following questions: How feasible would it be to use SMS-enabled technologies as an access model for non-formal distance education? What are the factors that would motivate or hinder people that have mobile phones,

along socio-economic and gender lines, to use SMS for distance education? What would be the best marketing, design and content development strategies to effectively promote, attract and sustain people's involvement in SMS-enabled distance education programs? We also need to explore its viability as a stand-alone tool for delivering distance education, or if it is better as a component of so-called "blended" learning, part of an educational package that makes use of both "old" and "new" technologies.

Thus, the Molave Development Foundation, Inc. and its partners, Bureau of Alternative Learning Systems of the Department of Education in the Philippines, and the English for Special Purposes Foundation and Health Sciences University in Mongolia, are undertaking an action-based research project to answer these questions. This work is being carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada, administered through the Virtual University of Pakistan.

Project Objectives

The goal of this research project is to test the feasibility and acceptability of using SMS as an access model for delivering non-formal distance education modules to different socio-economic, cultural and gender groups, and to determine the motivation of users for DE purposes. Specific objectives of the study include the following:

1. To identify specific socio-economic, cultural and gender groups in the partner countries (market vendors, farmers, laborers, taxi drivers, household help, waiters, etc.) that would enroll in the SMS-enabled distance education programs in the two partner countries (Mongolia & Philippines).
2. To determine the psychosocial behaviors of people linked to the use of mobile phones & SMS, their educational needs and motivations.
3. To determine and surface any gender and policy issues related to access and use of SMS technologies, as well as for distance learning.
4. To adopt or develop common quantitative and qualitative research and evaluation methodologies to be used by the two countries to collect, encode and analyze the research variables.
5. To design and develop low-cost course materials for the identified SMS-enabled non-formal distance education short courses, complemented by other materials.
6. To formulate an effective strategy to market the courseware to different socio-economic, cultural and gender groups.
7. To analyze the different factors (socio-economic, policy, gender) that contributed to the degree of success of the marketing and educational delivery strategies.
8. To share and disseminate results between partner countries and to the educational and IT community in general.

Conceptual Framework

The hypothesis that this research will test is whether or not a set of well-designed, pre-tested and peer- and stakeholder-reviewed instructional materials wholly or partly delivered using SMS technologies, the so-called “SMS Learning Modules”, coupled with a good marketing and promotions campaign, would lead to an increase in the utilization of such materials by identified stakeholders. Eventually, with an increase in utilization, we posit that the learners will improve their knowledge and skills in certain subject areas,

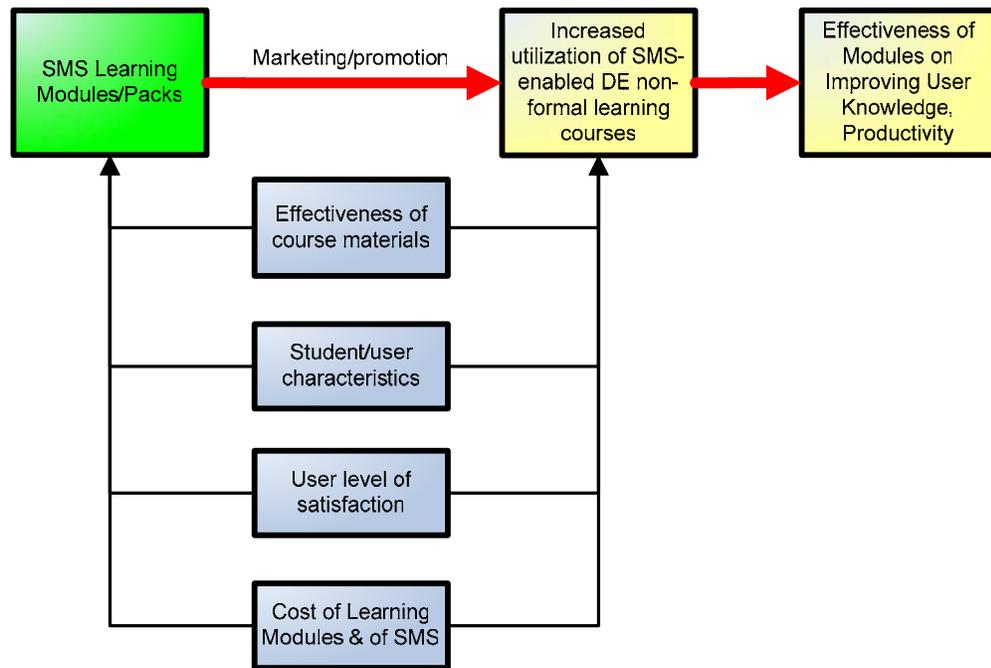


Figure 1. Conceptual framework of the SMS Project

and will raise their productivity as members of society. These relationships are illustrated in Figure 1. This proposed cause-effect relationship can be affected by several factors, namely the effectiveness of the course materials that will be designed and developed, the inherent psychological and cognitive characteristics of the students or end-users, the level of satisfaction that these people will derive from using the modules, and the cost of the modules, as well as the cost of sending and receiving SMS messages that will have the educational content. All these factors can affect the direction of the relationships that we are testing, and should be controlled during the design and implementation phases of the research.

Study Design

The conduct of the research will be done in three phases. The first phase is the Formative/Preparatory Stage, wherein an analysis of the technical and human resource needs of the partner agencies in terms of research and SMS capacity is undertaken. A Learning Needs Analysis of the potential beneficiaries will be done, by determining their preferred and requested subject matters through conducting focus group discussions and interviews with key informants and people within the identified stakeholder groups. From these preliminary activities, the necessity of training personnel, purchase of needed hardware and software, and the determination of learning objects and content as well as instructional design will be done. This will be followed by pilot testing of the content and learning objects, before the final outputs can be considered for conversion and design into SMS format.

The actual design and production of the SMS modules will be done during the second phase. This will include discussions with SMS service and technology providers to determine the best and most cost-effective hardware & software and marketable models to use for the project, as well as pilot testing of the materials to students.

Finally, the third phase will deal with a comprehensive process and summative evaluation of the study, which will involve design, developing and testing of the assessment tools, actual collection and analysis of data, development of marketing initiatives and advocacy efforts to the pertinent business, educational and ICT policy-making bodies in the Philippines, Mongolia and in the region. Reporting the results of the study for publication is expected to be completed by the 3rd quarter of 2007.

Project Beneficiaries

These will include groups that have not been traditionally considered to be students of more established distance education courses, such as market vendors, household help, laborers, farmers, fisherfolk, herdsman, etc., as they tend to participate more in non-formal education and vocational programs. Other beneficiaries of the project will include educators in the formal and non-formal fields, and educational content developers, specifically in mobile platforms, as well as researchers in marketing, educational psychology, anthropology and sociology and gender studies. The project teams and the larger Pan Asia Distance Learning Technologies Network (PAN-DLT), as well as the educational community will also benefit from this study in increasing their capacity to undertake social analysis on issues of ICT-enabled distance education.

Research Outputs

1. Results of focus group discussions on various groups for each country, in terms of educational needs & motivation, psychosocial behavior and uses of the access model.
2. Production of “SMS Learning Packs” - courseware on SMS format and other ancillary materials (i.e. booklets, cassettes, CD-ROMs, etc.) on different subjects and topics identified as learning needs of different groups.

3. Setting up a SMS server in each partner country to handle student registration, storage and deployment of the educational materials.
4. Trained personnel on SMS-enabled technologies.
5. A set of standardized assessment tools and forms for use by partner countries.
6. A shared on-line repository (i.e. website) of educational materials & research tools/methodologies in PHP format for use by project partners.

Conclusion

Our Research is still in its beginning phases, thus we are still some time away from coming up with concrete recommendations based on actual outcomes and impact. However, this early on, we are inspired by the vast potentials of the technology to contribute to bridging the information and education gap in the Philippines and Mongolia. Unlike the problems of using computers, wherein there is a substantial learning curve for administrators, teachers and students, and issues as to expense, maintenance and obsolescence, texting is already being done by a significant chunk of the population who have already been empowered to make use of mobile phone technologies, which points to its superior user-friendliness. SMS can be a viable ICT option to use in distance education. We only need to address the lack of availability of courseware that can either be delivered by text messaging entirely, or as a part of blended learning, perhaps with printed materials, and to assess its viability in terms of how SMS can motivate people in the non-formal education setting to learn. A concerted effort on action research in this area is critical, involving various stakeholders including educators, academe, NGOs and communities. Hopefully, the SMS educational access model will be instrumental in realizing the vision of Education for All.

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