Can Mobile Learning Upgrade the Educational Status of Bangladesh: Challenges and Opportunities?

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Abstract

Education is the fundamental right of Bangladeshi population. Skilled and educated manpower have the scope to contribute for national development. As vast improvements happened in enrolment status, significant challenges still remain in rural and remote regions. Mobile technology such as smart device, mobile apps, smart card etc. facilitates the flow of information and knowledge to all over the country. Bangladesh has ranked at 9th position by using mobile phone in the world (Wikipedia, 2016) but in the educational sector the use of mobile application is far behind. To ensure the quality teaching and learning methods Bangladesh Open University (BOU) has planned to use mobile and internet technology for the learners.

A Cross-sectional study was designed to collect data from October to December 2015 using a semi-structured separate set of questionnaire for learners and tutors from the randomly selected study centers. The sample size of this study was 615. A pilot test was conducted to confirm the clarity of the items before the instrument was administered to the sample group.

Recently BOU has developed mobile set compatible memory cards containing e-books and audio-visual materials for the learners. BOU have uploaded near about 400 textbooks in the form of e-books of almost all academic programs. It also developed and installed multiple mobile apps and educational webpage for the learners as learning tools. It would be a great opportunity for the learners to access their study material and any other quarries regarding their learning process by using the student portal from their mobile internet. This is cost-effective and time saving approaches to enhance the teaching-learning process for huge number of learners. Despite of these, Bangladesh has faced uninterrupted and low bandwidth internet connectivity throughout the country. This paper focus on how the learners can uses of different learning tools regarding the learning process by using mobile technology in the context of Bangladesh.

Key word: Mobile Learning, Cost-effective, Mobile Technology.

Introduction

The modalities of education delivery are now shifting from bricks to click. With the rapid advancement of Information and Communication Technology (ICT) and mobile technology most of the education providers are planning to deliver their programs through it. Open and Distance Learning (ODL) is an alternative way to educated mass population with its multi-diversified programs. Bangladesh Open University is the only public university which offered education through ODL system. BOU imparts education through a set of self-learning materials (SLMs) written in modular format and providing tutorial sessions at selected study centers. It also supports the learners through audio-visual media which have been broadcasted and synchronized with the tutorial sessions.

Education is the fundamental right of the population and educated manpower can enhance the economic development and growth of a country. Mobile technology and its uses provide an up dated information at the door step of the population. It also enhances the existing knowledge of the stakeholders. Mobile technology such as smart device, mobile apps, smart card etc. facilitates the flow of information and knowledge. Still there is a gap between the learners and the providers for the dissemination of knowledge at BOU with the existing learning approaches.

To overcome this situation and to ensure the quality teaching and learning processes, BOU has been planning to use ICT based learning for the learners. Recently BOU has developed mobile set compatible memory cards containing

e-books and audio-visual materials for the learners. BOU have uploaded near about 400 textbooks in the form of e-books of almost all academic programs. The learners can browse and download their required study materials on their mobile sets by using mobile internet. In Bangladesh, mobile phone and internet subscribers are increasing day-by-day. At present the total number of mobile phone active subscribers in Bangladesh has reached 131.376 million while the number of active internet user has reached 63.290 million (BTRC, 2016). It would be a great opportunity for the learners to access the study materials within a minute at their hand, gather knowledge and share with their peer learners at a minimum cost. Learners can also share their quarries with teachers regarding learning process by using the student portal from their mobile internet. This is cost-effective and time saving approaches to enhance the teaching-learning process for huge number of disadvantage, rural and remote learners. This paper focus on how mobile technology can enhance teaching-learning process of different level of programs at Bangladesh Open University.

Open and Distance Learning in Bangladesh

Open and distance learning create a new window of learning opportunities at various levels whom do not have access and/or whom have limited access to conventional educational system for various reasons. ODL also supports learning as a continuing or life-long process as well as scientific and technological advancements (Rumble, 1989). BOU established in 1992 and it becomes a mega university in terms of learners' enrollment (Daniel, 1996; Wikipedia, 2016). At present, BOU is offering 32 formal programs from certificate to master's level from its six schools. In the session of 2014-2015, there are about 4,10,694 learners have been enrolled in those programs (www.bou.edu.bd). Most of the programs are available in urban, sub-urban and rural areas. Some programs have the greatest impact in increasing the opportunities for girls and women to participate in education. The processes of these learning approaches for the learners have not full fill the demand of the knowledge acquiring. These can be achieved by using mobile learning based education.

Methodology

A cross-sectional study was designed to collect data from October to December 2015 using a validated semi-structured separate set of questionnaire from the learners and also from tutors of BOU. There are more than 1300 school, college and university those are represented as study centers of BOU where a total of 22000 tutorial facilitators are engaged. Data was collected from the randomly selected study centers along with its learners and tutors separately. The sample size of this study was 615. The items of the questionnaire were divided into 3 sections. Section 1 was on respondent's biographical profile; section 2 regarding the technology uses by respondents, and section 3 having respondents' knowledge, attitude and practices of mobile applications. Some sections required responses to selected items on a five-point Likert-Scale and scored as 5, 4, 3, 2, and 1, respectively. A pilot test was conducted to confirm the clarity of the items using a sample of 8 academics and 12 learners before the instrument was administered to the sample group.

Mobile and Internet subscribers in Bangladesh

Mobile facilities have expanded all over the country especially at the remote and rural areas of Bangladesh. According to Bangladesh Telecommunication Regulatory Commission (BTRC), there are 131.376 million mobile phone subscribers at the end of June 2016. The number of mobile phone subscribers of different providers is appended in Table 1 (BTRC, 2016). Moreover, almost every single village in Bangladesh has been bought under the mobile network system. There are now many who can keep mobile phone due to low price of set and affordable charges.

Table 1: Number of mobile phone subscribers in Bangladesh

Operators	Active Subscribers in Million
Grameen Phone Ltd. (GP)	56.909
Banglalink Digital Communications Limited	31.941
Robi Axiata Limited (Robi)	27.442
Airtel Bangladesh Limited (Airtel)	9.892
Pacific Bangladesh Telecom Limited (Citycell)	0.702
Teletalk Bangladesh Ltd. (Teletalk)	4.490
Total	131.376

According to the recent report of Husain (2016) the number of Smartphone users in Bangladesh has increased by 3.1
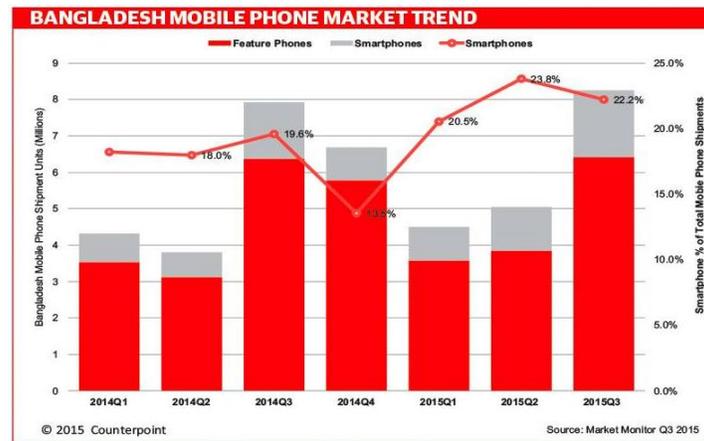
million to 8.2 million in 2015 (Figure 1).

Figure 1: Bangladesh mobile phone market trend

With almost one-fourth of population connected to internet, there is a huge opportunity for the handset players to tap first time users by offering affordable, yet quality smart devices. Table 2 shows that number of mobile internet subscribers in Bangladesh has increasing year by year. In 2013, it was 33.9 million and in 2015 it was 46.89 million. Whereas, in 2016 it is tremendously increasing is about 59.65 million. These figure leads the learners to adapts the mobile based learning opportunity at home or anywhere or any time.

Table 2: Number of Mobile Internet Subscribers in Bangladesh

Year	Subscribers in Million
At the end of June 2016	59.658
At the end of June 2015	46.899
At the end of June 2014	36.412
At the end of June 2013	33.905

Advantages of Mobile Technology in Education

Customization of educational content is possible for learners through mobile devices. Learners have the opportunity to receive relevant educational resources at anytime and anywhere. Moreover, mobile learning provides all sorts of educational facilities to the learners as they required for achieving learning outcome (Volk et al. 2011). With the adaptation of learning management system (LMS), educational content can be compatible as mobile resonance that can be another benefit for the learners by which all educational resources like assessment, assignment and participation in the forum, peer group discussion, can be useful for the learner for evaluation. With the advancement of the connectivity and devices, social networks have been up dated day by day; for that reason, sharing of educational information can be possible by mobile learning (Sharples et al., 2007).

One of the most exciting developments in technology for learning is the increasing focus on the mobility of the learning experience. It is established that mobile learning is not about devices, but rather about learning across contexts. The mobile device is a very personal choice and acts as an extension of the person's reach into the community of study.

Mobile Technology in Education and its Advantages in Bangladesh

Bangladesh is the upcoming middle income country but still there have some limitation to uses of computer everywhere due to limited infrastructural facilities and interrupted power supply at the rural areas where mobile technologies can be used as an alternative way to access education. The use of mobile technology has been increasing day-by-day in Bangladesh. This provides an outstanding opportunity for educators to reach learners around the world in terms of time and location. The fast growing mobile learning is now part of an innovative learning setting created by the availability of technologies supporting flexible, accessible, personalized education. A huge number of learners' uses mobile phones, smart phone and tablet pc which can also be used for learning

devices. These are now important component for the rapid uptake of mobile learning throughout the world and especially developing countries like Bangladesh. The advantage of mobile learning is easy to access of context-specific resources at any time, any place and anywhere.

Result and Discussion

Adaptation of ICT and Uses

There are evidences from research that ICT can help learners to learn and teachers to teach more effectively. The field of education has been affected by ICTs, which have undoubtedly affected teaching, learning, and research (Yusuf, 2005). ICTs have the potential to innovate, accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Yusuf, 2005). Mobile learning is defined as the provision of education and training on mobile devices. This study try to explore the learners' and tutors' knowledge, attitude and practices towards the mobile learning in the field of education.

1. Have you ever seen educational document through mobile phone?
To know the effectiveness of mobile application regarding educational resources or activities; this study tried to explore the tutor's and learner's opinion that has been showed in Table 3. Both the learners and tutors were asked have you ever seen educational document through mobile phone. Among the respondents, 33.9% (n=147) learners and only 17.9% (n=17) tutors were said that they have had seen educational document via mobile phone. Majority of the learners (66.1%) and tutors (82.1%) did not aware about the mobile phone related educational resources.

Table 3: Have you ever seen educational document through mobile phone?

Opinion	Learners		Tutors	
	n	*%*	*n*	*%*
Yes	147	33.9	17	17.9
No	287	66.1	78	82.1
Total	**434**	**100**	**95**	**100**

2. Do you think phone is useful to expand education?
Both the learners and tutors were asked did you think that mobile phone is useful to expand education. Figure 2 showed that almost three-quarter of the learners (70.3%) and tutors (75.8%) gave their positive opinion that the mobile have a scope to expand education to greater extent. One-fourth of the learners (29.7%) and tutors (24.2%) did not did not thought that mobile phone had not played any role to expand education.
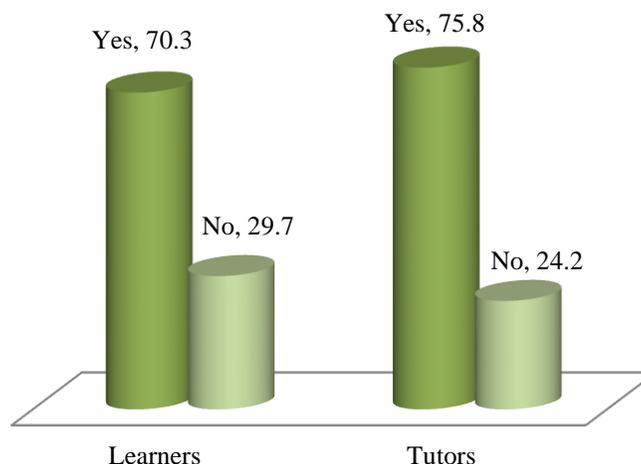

Figure 2: Do you think phone is useful to expand education?

3. Do you interested to receive educational resources through phone?
This study also tried to know the learners and tutors interest to receive the educational resources through mobile phone. Table 4 showed that amongst the learners, about 85% (n=369) were interested to received BOU's or any

other educational resources through mobile phone; whereas, almost all of the tutors (96.8%) were interested to receive educational resources through phone.

Table 4: Do you interested to receive educational resources through phone?

Opinion	Interested to receive educational resources through phone			
	Learners		Tutors	
	n	*%*	*n*	*%*
Yes	369	85.0	92	96.8
No	65	15.0	3	3.2
Total	**434**	**100**	**95**	**100**

4. Which type of educational facilities do you want to receive from BOU?

Both learners and tutors were also asked about what types of supports or services they would like to wanted or required from BOU. They were also requested to give their multiple responses against the nine factors of support services. This study explored that receive the examination result via phone was the top priority for both the learners (57.6%) and tutors (69.9%). This was followed by the tutorials routine for the learners (54.6%) and examination routine for the tutors (61.3%). And the third priority would be solved the various problems those are generated time to time. Huge number of learners and tutors also expressed their demand to receive the syllabus, lesson plan outline, access to library, any information or notice as well as the content of the study materials (Table 5).

Table 5: Which type of educational facilities do you want to receive from BOU?

Sl.	Variables	Learner; n=369		Tutor; n=92	
		Yes	No	Yes	No
1.	Tutorials routine	54.6	45.4	46.2	53.8
2.	Content of study materials	29.5	70.5	31.2	68.8
3.	Syllabus	41.1	58.9	53.8	46.2
4.	Lesson plan outline	35.4	64.6	48.4	51.6
5.	Examination routine	53.8	46.2	61.3	38.7
6.	Examination result	57.6	42.4	69.9	30.1
7.	Quarries to solve problems	43.2	56.8	58.1	41.9
8.	Information	35.4	64.6	45.2	54.8
9.	Library services	24.6	75.4	30.1	69.9

5. Access to ICT and its Uses by Learners and Tutors

The field of education has been enhanced by ICTs, which have undoubtedly increase the quality of teaching, learning, and research. The effectiveness of mobile application in the field of education has been widely accepted by the learners and educators. This study expressed that majority of the learners (66.1%) and tutors (82.1%) of BOU did not aware about the mobile phone related educational resources; whereas, three-quarters of the learners (70.3%) and tutors (75.8%) gave their positive opinion that the mobile have a scope to expand educational activities to greater extent and almost all the learners (85%) tutors (96.8%) were interested to receive educational program through phone.

Key advantages of using mobile technologies in education

Mobile learning is widely used in teaching-learning system. The benefits of mobile learning are as follows:
- Affordable devices for the learners are available;
- Enhances the learners' skills at individual level;
- Provide immediate feedback on their learning experience by tutor or peers;
- They can share their experiences of learning problems with facilitators and peers;
- Study materials would be accessible to more learners, through mobile apps, blogs and e-contents;
- With the suitable LMS it can be updating the curriculum, changing teaching methods and implementing improved feedback to learners;

Challenges

a) *Motivation:* The development of ICT is growing very fast but the user of ICT does not have same way in some region in Bangladesh. So, strong motivational activities should be emphasized to adopt the newly emerging educational system.
b) *Policy:* To motivate the learner there should be implemented a user friendly policy to support the mobile learning.
c) *Support:* ICT support system should be cost effective and available for the learners.
d) *Quality:* Strong quality should be maintained to disseminate the open educational resources for all corners of learners.
e) *Access:* Learning materials should be available, chief or free of cost, convenient and easy to reach from everywhere and at any time.
f) Cultural hardness

Bangladesh Open University Initiatives

Recently, BOU has taken some initiatives regarding technology based learning for learners who can access their learning materials through mobile devices. BOU upload all the study materials to BOU website as PDF version. learners can easily download this material using their mobile devise easily. Video and Audio programs have been uploaded in BOU's won's web tube site and YouTube. Learners can access these audio-video document by using android based mobile devices. Moreover, BOU also introduced mobile technology (micro SD card embedded with mobile phone sets with loaded video/audio lectures) for the learners. They will get it at the time of enrollment and can watch these programs without internet. Android apps has been developed for all courses of all academic programs and other BOU information.

Conclusion

In the digital world, mobile era is take over all the facilities in our daily life. By mobile technology is being used by people to conduct everyday communications and to complete everyday tasks. Internet, e-mail and mobile phone access is dramatically expanding due to the gradual price decline. Individuals are using mobile technology for entertainment – "entertainment in the pocket" and to shop – "in the pocket shopping". Education need to make the transition so that we can have "learning in your pocket" with mobile learning (Ally and Needham, 2011). However, to achieve these goals and these initiatives must implement lifelong learning and deliver education on mobile devices and tablets which are affordable.

This study expressed that majority of the learners (66.1%) and tutors (82.1%) of BOU did not aware about the mobile phone based educational facilities; whereas, three-quarter of them thought that mobile have a role to expand educational facilities and almost all the learner's and tutors were showed their interested to receive educational program through phone. They wanted to get the result, tutorials routine and examination routine through mobile phone as well as would like to solve the various problems via phone those are generated time to time.

References

Ally M, and Needham G. (2011). Transforming libraries with mobile technology. London, United Kingdom: Facet Publishing.

BTRC. (2016). *Mobile Phone Subscriber in Bangladesh* at the end of June 2016. Retrieved from http://www.btrc.gov.bd/content/mobile-phone-subscribers-bangladesh-july-2016.

Daniel J. S. (1996). *Mega-Universities and Knowledge Media: Technology Strategies for Higher Education.* London, Kogan Page.

Husain, I. (2016). Smartphone users on the rise, http://archive.dhakatribune.com/business/2016/jan/24/smartphone-users-rise#sthash.voAffqmi.dpuf

Rumble, G. (1989). On defining distance education. *The American Journal of Distance Education*. 3(2), 8-21.

Sharples, M., Taylor, J., & Vavoula, G. (2007). A theory of learning for the mobile age. In R. Andrews & C. Haythornthwaite (Eds.), The Sage handbook of e-learning research (pp. 221-247). London: Sage Publications.

Valk J-H, Rashid A T. and Elder L. (2011). Using Mobile Phones to Improve Educational Outcomes: An Analysis of Evidence from Asia. International Review of Research in Open and Distance Learning. 11(1): 117-140.

Wikipedia. (2016). List of the largest universities by enrollment, From Wikipedia, the free encyclopedia, http://en.wikipedia.org/wiki/List_of_largest_universities_by_enrollment cited on 15 August 2016.

Yusuf, M O. (2005). Information and communication technology and education: analysing the Nigerian national policy for information technology International Education Journal, 2005, 6(3), 316-321.