TEACHING AND LEARNING THROUGH TECHNOLOGY IN BANGLADESHI HIGHER EDUCATION

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ABSTRACT: Conventional scenario in higher education has been shifted from four- walled classroom to a no-walled virtual platform with the help of technology-based resources. These resources are being used for effective teaching and learning in the form of interactive whiteboard, multimedia projector, mobile phones, TV channels, social networking websites, MOODLE, Podcast, web quest, website, e-books, e-journals, e-encyclopedia, e-dictionary and some more virtual resources. This paper presented the proliferation of technology-based tools in the universities of developing country like Bangladesh. This paper also threw some light on this paradigm shift by employing technology –based tools and making it accessible to pupils, teachers and other stakeholders is an ongoing challenge. Being a part of this challenge most of the educationists must focus more on skill-oriented and interactive activities. Teaching and learning have been going to be more social; it's all about access, anywhere learning and collaboration both locally and globally. This paper finally aimed to show some major limitations in implementing technology with the suggestions to overcome the barriers.

KEY WORDS: teaching, learning, technology, higher education.

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INTRODUCTION

Higher education can open and expand our mind while technology helps us to bring the world at our fingerprints. Education without technology is incomplete in today's fast paced world as it helps us both for teaching and learning. The developing country like Bangladesh is very rapidly moving towards the digital age to cope up with the present world. Using the technology-based equipment in the classroom or online resources, our future generations will successfully handle the challenges or barriers in higher education. At the same time they will also face some challenges in using completely new and modern equipments. *"Given the essential goal of preparing today's students for higher education and careers, we encourage shifting emphasis from improving standardized test scores to a different research focus – how to use reflectively and scientifically to make teachers and curricula more effective. The above three form of technology applications – as a tutor, as a teaching aide and as a learning tool – all show considerable promise for this purpose." (Steven, Gary and Deborah, 2010)*

LITERATURE REVIEW

Many educationists have emphasized the importance of integrating technology based teaching into curriculum of higher education in Bangladesh. They believe that it has *"the potential to transform education if teachers reform their instructional practices to engage students in meaningful learning and use of 21st-century knowledge and skills" (Morrison & Lowther, 2010, p. 4).* Teachers' lack of time, training, and interest are the main barriers for integrating technology into teaching. On the other hand most of the students prefer use of technologies for educational purposes. One key reason for this may be the fact that they are depended more on technology based tools for daily uses.

The survey conducted by Microsoft found that 82% students aged between 16 and 18 years used Facebook every day (Coughlan, 2011). Our students also have become more depended on social networking like blog, twitter, face book or other online platforms. Rheingold (1993) argued that *'researching online communities is like looking into a social space such as a café, ... the need for people to fill a gap that has arisen through cultural shifts that have led to the disappearance of informal meeting places in modern society'.* Harrison and Thomas (2009) mentioned about the paradigm shift we witness in the present era which occurs for the use of social networking sites where .... *"the people are learning languages independently through the use of a growing range of Web-based tools that are presented in the context of a more participatory framework".* Using such Web-based applications learners can create their own personal learning environments where the teachers also can join and decentralize the process. Because of this own controlled learning and through the process of mediation a learner can go beyond the second language learning with the help of his personal development. Chonguage Sitthirak (Thammasat University) mentioned the definition given by Ashley (2003) that is a synchronous tool *"enables real-time communication and collaboration in a "same time-different" mode",* while the asynchronous *"enable communication and collaboration over a period of time through a "different time-different place" mode".* Chonguage also talked about the advantages of synchronous tools like audio-video conferencing, chat and instant messaging, Twitter, Skype and asynchronous tools like e-mail, web board, web blogs, streaming video-audio. First kind of tools *"offer spontaneous reaction, updated data and immediate feedback".* Second type of tools *"have less immediate interaction and the*

delayed response will cause information to be out-of-date". The purpose of the correspondence between senders and receivers will decide the selection of synchronous and asynchronous tools……. *"the teachers and the students whether they want to communicate in real time or share information for later use"* (Chonguage Sitthirak). Dalton (2009) implied from his research result that *"teachers should change their role into 'facilitator' rather than the 'giver-of-knowledge' and promote more group work and relaxing learning environments"*. As to students' new roles, they have to engage in online task-based learning or discussions. This eliminated the general chatting time better than face-to-face discussion (Dalton, 2009).

METHODS

This research adopted a Descriptive Research Design that also referred to as an observational study. Data were collected using two different questionnaires: one for the students, another for the teachers. These questionnaires were circulated among the tertiary level students and a very few lecturers and professors of Bangladeshi non-government University namely International University of Business, Agriculture and Technology (IUBAT); they are regular in using technology for the education purpose. They are accustomed with technology based tools in classroom and with some online resources as teaching aid and learning tools. This study also observed the changes and challenges they face in using technology making it more effective.

DISCUSSION

There are some technology based tools which have become very popular among the teachers and students of Bangladeshi universities. They are helping to expand higher education both in national and international level.

Interactive White Boards are a new invention of technology and also known as electronic whiteboards. They are large, touch-sensitive boards which connect to a computer and projector. The computer desktop is projected onto the board's surface where users control the computer by using an electronic pen, finger, stylus or other devices. They are quite new and hardly used for teaching and learning purposes at the tertiary level of our education with some benefits like flexibility, versatility, multimodal presentation potential, enhancing efficiency and modeling of ICT skills, interactivity and participation in lessons. Department of English, University of Dhaka has already introduced this type of digital board in some of their classrooms.

The use of **multimedia projector** in classroom at tertiary level is not new in Bangladesh. It helps the teachers to capture attention, engage learners, explain difficult concepts, inspire creativity, and have fun. By using static or dynamic multimedia learners can visualize difficult concepts or procedures more easily.

Mobile phones are also used for effective teaching and learning these days. Learners can communicate with the teachers for any queries other than the classroom activities.

We can see many programs or talk shows which are education related on several **TV channels** of Bangladesh. These programs mostly focus on science and technology, agriculture, English language learning or tourism and directly can help both the learners and teachers.

MOODLE is originally an acronym for Modular Object-Oriented Dynamic Learning Environment, which is mostly useful to programmers and education theorists. Moodle is a Course Management System (CMS), also known as a Learning Management System (LMS) or a Virtual Learning Environment (VLE). It is a free web application that anyone can use to create effective online learning sites. It has become very popular among educators around the world as a tool for creating online dynamic web sites for their students. It applies both to the way Moodle was developed, and to the way a student or teacher might approach studying or teaching an online course. Anyone who uses Moodle is a Moodler. Some of the renowned public and private universities of Bangladesh have already introduced this system for the development of teaching and learning activities and are playing a vital role in developing the area of higher education. In Bangladesh among the private universities BRAC University and University of Liberal Arts (ULAB) have introduced MOODLE and developed a system for better teaching and learning. International University of Business Agriculture and Technology (IUBAT) is using Automation System which also can be termed as MOODLE.

A digital audio file namely **podcast** that is made available on the Internet for downloading to a computer or portable media player, typically available as a series, new installments of which can be received by subscribers automatically is also working as a teaching and learning aid in our country. Podcast are useful to deliver the research content or lessons to students who need extended support. Creating podcast allows the university students to develop several important skills such as researching, writing, speaking effectively, solving problems, managing time, grabbing attention and improving their vocabulary. Teachers are recording audio podcast to provide additional and revision material to students and students are also creating their own podcast to share their learning experiences with each other.

A **Web Quest** is "an inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the internet, optionally supplemented with videoconferencing" (Bernie Dodge, the originator of Webquests). Having a base on constructive learning theory, it has been a part of project-based learning and teaching in mainstream education for some time. They also have multitude of applications in ESL/EFL, both in ESL/EFL classes that are focused on content/theme- based learning and in teacher training. An effective WebQuest develops critical thinking skills and often includes a cooperative learning component. A well-written WebQuest requires students to go beyond simple fact finding. WebQuests help students analyze, synthesize, and evaluate information. There are two kinds of WebQuests, short term and long term.

An **e-book** is an electronic version of a text book which is readable on computers or other electronic devices. This digital form of book that consists of texts and images is popular among the teachers and students because of mobility and fast reproduction. These books are served to unlimited number of people by the most of the renowned university libraries in our country.

E- journals or electronic journals which are published on the

web, can be accessed via electronic transmission. They provide material for academic research and study that are mostly formatted quite like articles in traditional printed journals. In most of the renowned universities of Bangladesh (public or private) there is a change among the library users who created a virtual learning environment.

Social Networking websites like facebook, twitter, blog, skype, youtube, LinkedIn are also being used for teaching and learning. These sites are not just for entertainment anymore. People can use them for education too. They are very popular among Bangladeshi teachers and students as they help to remain connected even after the class. Through these platforms a teacher can announce any notice to a particular group of students or can counsel the students personally. As web based services, social networking sites help the individual to construct a public profile within a system and to articulate a list of users with whom they are connected. These digital applications are varied by their purposes of use: video chatting, discussing, photo sharing etc. Some of them are named as synchronous tools and some are as asynchronous tools. The synchronous tool enables real-time communication and collaboration in a 'same time-different place' mode, while the asynchronous tool enables communication and collaboration over a period of time through a 'different time-different place' mode. Synchronous tool such as audio-video conferencing, chat and instant messaging, Twiitter, Skype etc. have some advantages in that they offer spontaneous reaction, updated data and immediate feedback, while the asynchronous tool such as e-mail, web board, web blogs, streaming video-audio etc have less immediate interaction and the delayed response will cause information to be out-of-date. The selection of synchronous and asynchronous depends on the purposes of correspondence between senders and receivers that means teachers and the students whether they want to communicate in real time or share information for later use.

Online Education System where there are many advantages of getting education in an online environment. These are: online classes can be cheaper than real classes, a student can choose his or her own studying time, studying from home will allow you to do other mandatory activities and there are some specialized courses which are available only in an online environment. This system has become quite popular among teachers and students of Bangladeshi public and private universities.

CHANGES IN EDUCATION AFTER ADAPTING TECHNOLOGY

The use of technology has changed the scenario of higher education in Bangladesh. The changes we observe in our education –

a. Evolution in communication
b. Extended classroom communities
c. Interactive textbooks
d. Web-based research

The students and teachers from public and private universities communicate in many different modalities as a result of technology. The **evolution in communication** strengthened the effective teaching and learning which has brought the teachers and students very close to each other surpassing the limitations of time and space.

The notion of audience is being changed by the use of skype, blog, twitter, facebook and other online platforms. Teachers and students are using these platforms to discuss homework, post assignments and interact with peers as they work on projects as **extended classroom communities.**

Textbooks are no longer limited to merely text and pictures. Nowadays web based sites are being used as **interactive textbooks** including assignments, animations, additional materials and videos to support teaching and learning.

The rise of **web- based research** has brought a remarkable change in the higher education in Bangladesh. It used to take hours in the library for educationists to find information, now they spend more time digesting, thinking, and learning about new information.

Higher Education and Challenges of Using Technology:

'Higher education enhances knowledge generation and cultural development including institutional autonomy, intellectual freedom and a culture of peace based on democracy, tolerance and mutual respect.' (M A Miyan, 2005). To meet the demands of quality education for all, the higher education systems have grown drastically during the last few decades in Bangladesh. In spite of enormous integration of technology and education, a good number of challenges are preventing widespread effective implementation. Some of these challenges are systematic and some are related to the technologies themselves.

One of the challenges is **lack of proper training** or ongoing professional development for teachers who are supposed to integrate new technologies into the classroom. Whereas they are to show the appropriate use of technology, they themselves are unable to use technological equipments.

Technological equipments are more **expensive** comparing to the traditional aid both for the students and the teachers unless the university arrangement is available.

As we have become more accustomed with digital texts, we are denying writing as an important skill. In the universities in Bangladesh the examination system is still dependent on pen and paper. The proliferation of digital equipments **lessens the adequate writing practice** both in learning and teaching.

Cheating or plagiarism has become easier for the students in a rapidly changing environment in the uses of digital technologies and easier access to data and knowledge. They have become reluctant to create their own text and it destroys creativity among the students.

Sometimes the use of technology can **destruct the students** both inside the classroom and outside the classroom. Note taking tendency among the students have been reduced due to the use of multimedia projection in the classroom. Even if they take notes they don't listen the professor's lecture carefully. Outside the classroom social networking sites are playing a significant role to maintain personal relations and sharing rather than the communication between learners and teachers for education purpose. This has become an obstacle for an effective learning system.

Nowadays the cheap rated and easily accessed offer by the mobile phone companies expanded the **overuse** among the

young professors and their students who are addict in Smartphone using.

FINDINGS

The survey took place at International University of Business Agriculture and Technology (IUBAT) in Dhaka, Bangladesh. IUBAT was founded in 1991 as the first non-government university in the country. It offers undergraduate and graduate programs in various disciplines mostly in business, agriculture and technology. The mission of this university is to develop human resources and to prepare the students to become fit for the present competitive world. In order to accomplish this mission IUBAT adopted educational technology to be integrated into teaching and learning. The students and teachers, who have limited expertise in using technology based tools, are identified as weaker to cope up in the global knowledge economy.

A good number of students were brought under the survey. Among 159 students 107 learners mentioned computer, 25 learners mentioned multimedia projector, 18 learners mentioned mobile phones, 4 learners mentioned television and 3 learners mentioned other educational technology as the most useful tool for learning. In case of online platforms 108 learners consider Google Search, 25 learners consider Youtube, 17 learners consider Facebook, 6 learners consider Google Scholar

Changes	Students Number
a. It made me more active and participatory in the classroom	31
b. I can use my creative ideas more easily	41
c. It provides easy way to collect information	70
d. Unnecessary use sometimes distracts me from study	3
e. Now I have a broader sense of classroom communities	9
f. It has made education expensive	3

and 1 of them consider Wikipedia as the most useful resources for their own learning. The changes students observed in their educational activities are as follows:

To communicate with the teachers 111 learners use email, 40 learners use facebook, 5 learners use skype and only 1 learner mentioned about mobile SMS for this purpose. They have multimedia projector, computer with internet connection, microphone with audio sound system in their classrooms. 75 students consider displaying PPT and 73 students mentioned searching for online resources as the main function of the computers in their classroom. Among them 8 learners stated that it has no actual usage, classroom decoration function only.They also talk about the changes they have got after using technology in learning. The following table shows the changes and students number who mentioned about each change.

Using technology for learning purpose the students also face some disadvantages. The following table shows the disadvantages they feel while learning.

Disadvantages	Students
a. Wrongly used by unskilled teachers	14
b. bad hand writing for less writing habit	28
c. Lack of technical support for technology use and maintenance	42
d. Sometimes technology access is not enough	66
e. None of them	7

74 students think the use of technology in the campus is enough for learning. 83 students argued that it's not enough, they need more equipment. 105 of IUBAT students think that their teachers are efficient enough in using technology, 10 students think no, they are not and 42 students are not sure about this matter. According to 67 students very few of their university teachers while teaching seek help from technology. 83 students declared all the teachers are using technology for teaching; only 6 of them opined that no one use any kind of technology based tool for teaching.

There was another questionnaire for the teachers that helped to carry out the survey. Among 25 teachers 17 teachers mostly use computer before going to the class. Other technology based tools like laptop, tab, mobile phone and online resources are also used by the teachers before going to the class. They also use computer, overhead projector, CD player and internet connection during the class time in the classroom. 8 teachers use technology for classroom activities, only 2 teachers use it to collect online materials, 6 teachers use it in preparing lesson plan and 9 teachers use it to have deep knowledge about the topic. 19 teachers feel using technology is very important; according to rest 6 teachers it's only important. They use facebook, email, blog, web portal or academia to communicate with the students. Almost all the teachers mentioned that their university provide computer with internet connection, printer and pen drive as technology support. They think this type of technology support help them to develop their teaching ability. 17 teachers mentioned declining writing skill is a challenge for them in using technology for teaching. 3 teachers mentioned lack of training and difficulties in using technology, 3 teachers mentioned distracting the students, 2 teachers talked about more chances of cheating by the students and 2 teachers consider overuse of technology as the challenge of using technology for teaching and learning purpose. They also recommended google search, google scholar, Wikipedia, youtube and amazon as online resource sources which can be used by the teachers.

RECOMMENDATIONS

Educational Technology or ETD proclaimed 5 key barriers to educational technology adoption in the developing world with some effectual suggestions. (Educational Technology Conferences 2014). Power, internet connectivity and bandwidth, quality teacher training, respect and better pay for teachers and the sustainability of implementations – these five items are needed to be dealt with for more rapid success.

You need **power** to run technological devices and until power is widely available, reliable and affordable; educational technology uptake will be slow. If funding agencies are willing to sup-

port technology initiatives, they should also consider how power will be provided to these devices.

Planned installation of marine telecommunication cables cause to raise the potential to increase **internet connectivity**. The bandwidth must be capable of carrying compressed videos so that urban and rural people can have access to the wide variety of educational materials available in a video format and be able to exchange reasonable quality photographs and video clips. Government and private enterprise like mobile phone companies can take necessary steps to increase internet accessibility. Broadband access and wi-fi connection will be considered as basic human right in near future.

Electrical power and internet connection are present; now the teacher needs to know how to use them effectively. Teachers with limited knowledge of technology will face difficulties to use them to engage and support learning. **Training and professional development opportunities** that are provided to the teachers must be long enough for them to grasp the concepts behind teaching with technology, to have hands-on experience using the technology so that they can use it properly in their classroom and online environment. Massive Open Online Courses (MOOC) currently tend to appeal to people who are already well-educated and have access to adequate internet bandwidth. For the developing countries like Bangladesh MOOCs may need to be more localized, more practical and require less bandwidth than those offered elsewhere.

The people with best minds, who genuinely care about helping others need to be attracted to teaching. Some teachers think of filling heads with content rather that engaging students to solve problems and encouraging them to view the world from different perspective. Such teachers should be looked upon as cornerstones of the society as upon the rests the responsibility of educating the next generation. So **teachers should be valued more** being paid a proper living wage is part of it, but the other is respect for the profession. People cannot focus on teaching if they must hold several part-time jobs in order to support themselves and their families. In present world a teacher needs to be willing to try new methods and technology; willing to fail as they strive to improve themselves. Trying, failing and succeeding is what learning is all about.

The outcome of any educational technology project in the developing world must have the power of **sustainability**. It is important to consider – how will the technology or method be sustained once initial funding has ended? Glitzy technology has initially very appealing and accompanied by exaggerated claims of being a solution to all that ails the educational system but if it cannot be supported and maintained, it becomes a sophisticated paper weight.

The five suggested items described above will help to enhance the implementation of educational technology that can facilitate and support effective teaching and learning, though there are many challenges in Bangladeshi higher education.

CONCLUSION

Traditional concept and practices of education systems have been changed by the technological advancement. Technology has become a cultural tool for the teachers and students of present world. It has great impact on how they engage themselves in social activities. This study tried to show the use of different technology-based tools and some online resources which cause a paradigm shift in Bangladeshi higher education. This study also tried to show some challenges with recommendations in using technology for learning and teaching purpose.

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