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The Cause of Low Implementation of ICT in Education Sector Considering Higher Education: A Study on Bangladesh

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Abstract
Education is one of the main keys to economic development and improvements in human welfare. Information and Communication Technology (ICT) has turned out to be an effective educational technology which promotes some dramatic changes in teaching and learning process. ICT may change the way of livelihood and education system of a country. This study is to focus the ICT used by the teachers and their attitude towards using ICT in the classroom. Though the education sectors of Bangladesh are suffering hundreds of problems, ICT can change the present scenario. This research is to identify the current ICT status on higher education specially a government college in Bangladesh.

Key words: ICT; Higher education; Implementation

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1. INTRODUCTION
The Information and Communication Technology (ICT) plays a vital role in the process of teaching and learning. Bangladesh has started using ICT in education sector for making the country "Digital Bangladesh". The role of higher education is very important for the development of education sector. The study aims to explore the current status of using ICT in Government colleges in Bangladesh.

1.1 Purpose of the Statement
Education is a light and it makes students literate. The growth and progress of any society can be achieved by education. Technological innovation and economic growth can be raised, motivated and established by the human capital. Social improvement can be achieved by Education. Information and Communication Technologies have become an integral part in all aspects of life. Last twenty years, the use of ICTs has given a extreme change in education, business and governance.

According to a United Nations report (1999) ICTs cover Internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centers.ICT is information and communication technology and it includes hardware, software, computers ,scanners, digital cameras, CD and DVD players, multimedia etc. Skilled manpower is an enormous foundation of a country to compete with competitive world and the teachers and institutions are the builders of them. Some universities and colleges are doing their best to improve their educational system with the accurate implementation of ICT in their sector. Better policies and standards always support new learning environments, which are very much needed to build up the digital society in Bangladesh. The main purpose and objective of this study is to examine the integration problem of ICT with other formal education in higher education in Bangladesh.

1.2 Background of the Study
The 21st century is the age of technological development and this is reflected in all spheres of life, including teaching and learning. The use of Information and

Communication Technology (ICT) is very common in our everyday life and in the learning and teaching process in most of the developed world.

The use of ICT offers powerful learning environments and can transform the learning and teaching process so that students can deal with knowledge in an active, self directed and constructive way (Volman & Van Eck, 2001; de Corte et al., 2003).ICT can play a vital role not only in urban areas but also in remote areas. Bangladesh is an agricultural country and most of the people of the country live in villages. So any development will be incomplete without the development of the education sector. By adopting ICT, we can offer high quality education. Ehrmann (1994) identified four distinct faces of quality education, which can be supported by ICT: learning by doing, real time conversation, delayed time conversation and directed instruction. Hawkridge et al (1990) suggested that the use of ICT could improve performance, teaching, and administration, have a positive impact on education as a whole, and develop relevant skills in the disadvantaged communities - helping in liberation and transformation.

1.3 Problem of the Statement

Now days, ICT is the essential parts for participatory teaching system. In order to integrate ICT in the classroom, the physical resources like ICT equipment, broadband etc need to be in place and work. Obviously the teachers need to learn how to operate the technology, and further to use it in a pedagogical way for enhancing learning.

In Bangladesh higher education is one of the most important and biggest sub-sectors in education having huge number of institutions and teachers. The rate of enrolment in higher education increased significantly in last decade but in terms of quality, it is not up to the mark. But here drop out rate is very high. ICT provides an interactive media for attracting students, giving opportunities to group analysis and practice. It makes teaching and learning very easy and enjoyable. It also provides better access to resource materials (subject content and other related resources) and relevant articles (Khan, 2014). Teachers' skill is very important to proper utilizations of ICT in the classroom. Successful use of ICT depends on its facility, engage students in collaborative learning as well as enhance their social interaction (Dodge, Colker, & Heroman, 2003).Without proper implementation of ICT it is impossible to get good result. Effective learning improve student's cognitive development, increase creativity and improve their problem - solving skills (Khan, Hasan, & Clement. 2012).This study will help identify the factors that influence teachers' decisions whether or not to implement ICT in teaching-learning situations and also examine the challenges facing by the teachers using ICT in the classroom.

1.4 Significance of the Study

With Information and Communication Technology (ICT), a significant change is happened in the way the world operates and communicates. In order to find the steadiness to optimize educational outcomes to adopt ICT into Education is very necessary. The Government of Bangladesh has also made a vision of integrating ICT into its education system. This field of implementation of ICT in education in Bangladesh is a recent topic, so there are many areas within this field for further research. Connections will be made with existing literature to explore possible barriers for introducing ICT into education in Bangladesh and also this paper will be useful for the educators, policymakers and other decision makers who are directly involved in introducing ICT into education in Bangladesh.

1.5 Research Questions

In order to understand the present status of using ICT at higher education in Bangladesh, the study will mainly deal with the question of how ICT is integrated into the higher education with current education? In order to get a deeper understanding of the topic, the study will address another specific questions which are as follows:

(a). What is the present status of ICT use in the Government M. C. College, Sylhet in Bangladesh.

(b). What are the challenges facing by the Teachers of M. C. College in Sylhet division in Bangladesh for using ICT?

(c). What are the recommendations for proper utilization of ICT in higher education specially for the government colleges?

1.6 Literature Review

1.6.1 ICT in Bangladesh

Despite having 50 years of history the Government of Bangladesh (GOB) has only from 1997 officially recognized the potential of the ICT industry and its impact on the economy. The GOB has taken both short and long term measures (vision2021, Digital Bangladesh) to support and enhance development of the domestic sector and increase the export of ICT products and services. The main pillar of Digital Bangladesh is to connect all the rural areas by broadband connectivity. Another continuing trend is the prominence of ICTs in promoting "good governance" including facilitating more effective role of the state in promoting economic growth and social development. "ICTs make the most transformative innovation of the recent past. ICTs are interesting in the context of the inclusive development debate because of their ability to strengthen connectivity not only of higher-income groups but also of those at the lower income level," (OECD, 2012, p.43).In 2009 the national ICT policy was broadly reformulated across areas including education, science, and technology, infrastructural development, employment generation, private sector development, agriculture, health and nutrition. (-----) (2014).

1.6.2 ICT in Education Sector in Bangladesh

The history of the use of ICTs in education is relatively short. Before 1979, computer was used only in the higher educational institutions. After that using microcomputers started in many public and private institutions. Government took initiatives to implement ICT in educational institutions and for this reason they support the schools and the colleges by giving them computers and other tools. The GOB also arranged primary training for the teachers. Starting from the mid-nineties, the use of ICTs in schools rapidly expanded in developed nations through curriculum support, networking, the professional development of teachers and software improvements (Aston & Mike, 2002).

Each of the different ICTs—print, audio/video cassettes, radio and TV broadcasts, computers or the Internet—may be used for presentation and demonstration, the most basic of the five levels. Except for video technologies, drill and practice may likewise be performed using the whole range of technologies. On the other hand, networked computers and the Internet are the ICTs that enable interactive and collaborative learning best; their full potential as educational tools will remain unrealized if they are used merely for presentation or demonstration.

Succesfull use of ICT can improve student-centered active learning (Ellis et al., 2008), engage students in collaborative learning as well as enhance their social interaction (Dodge, Colker, & Heroman, 2003), improve their cognitive development, increase creativity and improve their problem - solving skills (Khan, Hasan, & Clement, 2012). From the above discussion it is clear that ICT is very much useful for teaching and learning.

Secretary, Ministry of Education, Bangladesh reports as The ICT education is already made compulsory in education. Besides, the Ministry of Education is also providing online services for education related issues and implementing its actions of imparting broad use of ICT in classroom teaching. As a result it has brought about significant changes in the field of education' (Ministry of Education, Bangladesh, 2003). Through the internet teachers can collect many resources related to the text, videos, stories etc and they can use it in the classroom. The human resource development category has four parts: (a) building e-learning infrastructure, i.e., one school, one computer lab, smart class room with e-learning facilities; (b) ICT education; (c) ICT-based education; and, (d) vocational ICT training facilities for the youth. On the other hand, the Perspective Plan calls for making ICT education mandatory at the secondary level by 2013 and also establishment of computer labs at the primary level by 2021 (GED, 2012, p.57).

Bangladesh has made some progress in this third area. Secondary and Higher Secondary ICT based Education project has established 20,000 MMCs (13,700 school, 5,200 madrassas and 1,600 colleges) – internet connectivity, one laptop and one multimedia. The Basic ICT Skills Transfer up-to-Upazila level has set up computer labs at 192 educational institutions. It has provided training to 7,890 teachers as master trainers and to 112,189 students. In addition, 12,500 teachers have been trained to create multimedia content. These teachers are creating and sharing multimedia contents through a Teacher's Portal (https://www.teachers.gov.bd/), which is a central repository for e-learning content for teacher training and for all students. Incentives, through public recognition of best contents, are being awarded to encourage teachers' participation. Digital World (international), Digital Innovation Fair (district and sub-district level), Education Leaders' Conference (international), and Teachers' Conference (national) are being organized.

By using this advantages Bangladesh can improve in their educational sector. Technologies enhance students to work productively than in the traditional class room but the teacher's role in technology rich classrooms is more demanding (Keengwe, 2008).ICT has improved the teaching and learning process, teacher's work design and interactive student and teacher learning process. ICT has the potential to improve the educational system and ICT in the classroom can improve the student performance in every aspect of their student life (Kessy, 2006). In education the impact of ICT is very high. The ICT based class room is more interactive than any other class room, students can capture the difficult things in a very easy way which also very durable for them. Sometimes ICT will be an integral part for development of rural education in where there is no capable teaching staff. By applying the benefit of ICT ,we are able to give training, use video conferencing, audiovisual communication and communicate via satellite for the rural areas of Bangladesh (Ashraf, Grunfeld, Afza, & Malik, 2011)

2. RESEARCH METHODOLOGY

In this study both primary and secondary data has been collected .The study is empirical and explorative in nature and therefore the information presented is based on both primary and secondary data. To fulfill the main objectives of this research, primary data is collected by using online interview. The main questionnaires has been divided into two major parts, one is for teachers and other for students. Secondary data has collected from books, newspapers, journals, annual reports, internet etc.

2.1 Study Area

The study has been conducted in the government M. C. College in Bangladesh. It is located in the Sylhet district. The college was established in 1892 and the number of present teachers is about 200 and students are 20,000 in the college. Since then it has played an important role in the educational, cultural, and political spheres of greater Sylhet. It has 20 depertments, including honours and masters.

2.2 Data Collection

The primary data has collected through online. E-mail and face book has been used to collect data. A structured questionnaire has used for the getting answer from the respondents. A total eight questions were prepared for the respondents, four questions were for the college teachers and four questions were for the students. The total respondents are 20, among the respondents, 10 are teachers and 10 are students. Half of the respondents are female.

2.3 Data Analysis

On the basis of the study (both primary and secondary data) the findings can be summarized under three headings:

2.3.1 Teachers' Knowledge of ICT & Their Use in the Classroom

The use of ICT is new in higher education in Bangladesh. The data shows that the teachers' knowledge on ICT & their successful use in classrooms are not satisfactory. The most common uses of ICTs- the computer, the internet, e-mail, word processing; education videos & CDs are not regularly used by the teachers due to their limitations. The data reveals that as Mazhar (pseudo name), a teacher of English Department says "I feel comfortable to use audio and video in my English language class and students are attentive and interactive throughout the class time but most of the teachers do not use it because they feel shy due to their little knowledge on the use of ICT". Rahamat (pseudo name), a teacher of Botany Department says "to run the computer, electricity is required but in many colleges there is no electricity connection and computers given by the government is under lock & key only". Habib (pseudo name), a teacher of Bangla department says "I personally use internet to collect new resources for preparing the lesson and use it in the classroom and most of the teachers from different departments have knowledge about internet and other technological tools." Masuma (pseudo name), a teacher of Zoology department says, "I have knowledge about ICT but I do not use it in the classroom as it is not mandatory for us". Habiba (pseudo name), a teacher of political science department says," As we have no previous experience so we feel shy using ICT in the classroom". Out of 10 teachers, 2 teachers tell we use multimedia projector, laptop and mobile phone and also use internet for preparing the lesson.50% of the respondents told that they had no previous experience.80% of the respondents tell the main barrier of implementing ICT in the classroom is lack of resources, low supply of electricity, and low internet connection. All the respondents suggest for ensure electricity, improve internet connection, formulate an up to date ICT policy and make consciousness of all the groups, like parents, students and teachers.

2.3.2 Students Opinion of Using ICT

Teachers' main target is to make the lesson understandable to the students. So using ICT in the classroom depends on the students' attraction. Students say, some teachers use ICT in the class and some do not. Hasan, student of Zoology says, "our teachers do not use any ICT tools in the classroom but we have multimedia projector in the classroom but useless."Another student Sajon says "we have ICT tools in our department but teachers use it for their own purpose." Shamima student of English says, "Most of the teachers use ICT in our language class and we enjoy our lesson."Some students say we have some limitations in our college like shortage of electricity, unavailable of the internet, high price of the ICT tools, lack of training of teachers may be the cause of low implementation of ICT in the classroom. Out of 10 students, 7 students tell they have multimedia projector in the classroom but most of time it is not using. 3 of the respondents tell, they are learning effectively by the use of ICT like watching video and they enjoy it. And they also added teachers face problems like low internet connection, unavailability of the electricity, and infrastructure problem.

2.4 The Implementation Challenges and Recommendations

2.4.1 Challenges

The Government of Bangladesh is committed to implement ICT in education but the process has a number of barriers. There are many challenges for proper implementation of ICT in education. On the basis of the study some challenges are categorized as follows:

2.4.2 Lack of ICT Infrastructure and Resources

Most of the cities of Bangladesh do not get electricity more than eight hours in a day due to lack of electric supply. Supply of Electricity in the rural areas is also very poor. The development of the ICT infrastructure in a country is dependent on the availability of a reliable electricity supply. For Implementing ICT other resources, like computers, printers, multimedia projectors, scanners, etc - which are not available in all the educational institutions. Besides, ICT requires up-to-date hardware and software. Using up-to-date hardware and software resources is a key feature in the diffusion of technology (Gulbahar, 2007). There is hardware and software shortage in educational inistitutions specially in the rural areas. High-speed internet connection is another prerequisite for integrating ICT into the teaching-learning situation. But unfortunately internet access is very poor and sometimes it is totally absent.

2.4.3 Insufficient Funds

ICT-supported hardware, software, internet, audio visual aids, teaching aids and other accessories demand huge funds. Mumtaz (2000) stated that many scholars proposed that the lack of funds to obtain the necessary hardware

and software is one of the reasons teachers do not use technology in their classes. As Bangladesh is a developing country and most of the general people lives under the poverty line, so it is difficult to manage sufficient fund for using technology in the education sector. Afshari, Bakar & Su-Luan et al. (2009) state that efficient and effective use of technology depends on the availability of hardware and software and the equity of access to resources by teachers, students an administrative staff.

2.4.4 Vision and Plan

For proper implementing ICT in the institutions both the Government and the institutions need to fix their vision and plan

2.4.5 Government Vision and Plan

The Government of Bangladesh has emphasized the implementation of ICT in education with "Vision 2021" - in order to improve the quality of the educational system and also to create an Aim proved teaching and learning environment. For effective implementation of ICT in colleges is not only depend on the vision of the government but it needs a proper plan, policies, execution and monitoring: which is really a major constraint for a country like Bangladesh.

2.4.6 College Vision and Plan

Ertmer (1999) wrote, "A vision gives us a place to start, a goal to reach for, as well as a guidepost along the way" (p. 54). Many researchers have pointed out that a school's ICT vision is essential to effective ICT integration (Anderson & Dexter, 2000). In Bangladesh there is so many problems and educational institutions have facing so many difficulties for implementing ICT into teaching and learning situations. Also, there are few higher educational institutions in big cities that have ICT facilities but cannot integrate it effectively due to lack of a proper vision and plan. So ICT integration is clearly related to actions taken at the school level, such as the development of an ICT plan, ICT support, and ICT training (Tondeur & van Keer et al., 2008) which is absent at most of the educational institutions in Bangladesh.

2.5 Social and Cultural Factors

Sharma (2003) states that one of the most significant social factors influencing the use of ICT in Bangladesh, and other developing countries is the low social status of women and hence providing education or the use of ICT to women is not considered important. Women have no access to the ICT. Women are supposed to be primarily the caretakers of family and children. Women have low enrolment in education. Men disproportionately occupy academic, management and technical roles, which by virtue of the nature of the work provide easier access to the internet and related technology. Though some women have the access to the hardware and software, they get very short time to use it because of their household work. In Bangladesh, Bangla is the main language, whereas English is the dominant language over the computer (software), internet and ICT supported tools. Lack of English education and skills many people seem ICT is very hard. But currently language seems to be one of the major social barriers to the use of ICT in Bangladesh, where English is not so widely spoken (Leu & Leu, 1997; Turbill, 2001; Wims & Lawler, 2008) who found that lack of developmentally-appropriate software (DAS) is considered to be one of the difficulties faced by teachers and students). The reason behind that could be due to the scarcity of Bangla software, as most of the software programs are designed in English, which is the second language in the country.

2.6 Lack of Knowledge and Skill

According to Pelgrum (2001), the success of educational innovations depends largely on the skills and knowledge of teachers. Education is impossible without the teachers involvement. Teachers' lack of knowledge and skills is one of the main hindrances to the use of ICT in education both for the developed and underdeveloped countries (Mamun & Tapan, 2009; Pelgrum, 2001; Ihmeideh, 2009; Williams, 1995). Integrating technology in the curriculum requires knowledge of the subject area, an understanding of how students learn and a level of technical expertise (Morgan, 1996). Lack of knowledge and skill of ICT and its related tools limited ICT learning in higher education. Moreover, Berner (2003) found that the faculty's belief in their computer competence was the greatest predictor of their use of computers in the classroom.

2.7 Scarcity of Time

In Bangladesh there is teacher shortage and teachers have a heavy workload. Some of the institutions have introduced two shifts, without increasing the number of teachers. So every teachers have to maintain so many classes in a day, beside this they are also involve in administrative jobs. In these circumstances teachers do not have time to design, develop and incorporate technology into the teaching learning situation (Afsari, Bakar, 2009; Sarama, 2001). Teachers need time to learn how to use the hardware and software, time to plan, and time to collaborate with other teachers. So time management is more important to implement ICT in higher education.

RECOMMENDATIONS

The study suggests that the effective implementation of ICT in education in Bangladesh is impeded by a number of constraining factors. The paper also suggests the following recommendations for improving on the current situation:

(a). It requires commitment from the government of Bangladesh, administrators, teachers, parents, students, and the community for the effective implementation of ICT in education. For this reason the teachers,

the students, and the parents need to be aware of the importance of using technology of developing student's learning. And it will help to overcome the barriers to use ICT in the classroom.

(b). Lack of resources within educational institutions are another major hindrance to the implementation of ICT in Bangladesh. Lack of computers (both hardware and software) and other ICT-supported tools in the classroom can seriously limit the use of it by a teacher. So availability of the resources will improve the low implementation of ICT in the classroom

(c). Moreover, effective implementation of ICT in educational institutions of Bangladesh largely depends on teachers and principals, who require in-depth professional development due to lack of knowledge and skills. Vigilant attention needs to be given to in-service teacher training for both teachers and principals and pre-service training for newly appointed teachers before joining the regular classes to acquaint them with the important role of technology in colleges settings and to train them on how to prepare and use ICT competently.

(d). Successful implementation of ICT in the classrooms depends on teachers confidence and comfortable using of computers. Teachers must understand the value of computing in education to be able to benefit their students and to support meaningful learning (Novak 1998). So changing teachers' negative attitudes is essential for increasing their computer skills.

CONCLUSION

Education is the backbone of a nation. Undoubtedly, ICTs are potentially a useful tool both for managing education and teaching. Information could be created, processed and made available anywhere by the smart use of ICTs. It can make the higher education available to all classes of people throughout the country at a lower cost. As a result, people will gain the necessary knowledge, skills, and experiences to serve the nation. This study reveals that the level of use and infrastructure of ICTs of the college is not highly satisfactory to meet the current demands of ICT. The college needs to be provided with adequate facilities and resources for effective implementation of ICT. The government can help by providing in-service training to the teachers.

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