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A Statistical Case Study of using ICT in Educational Sector in Rural Context of Bangladesh

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Abstract- Nowadays information and communication technologies (ICT) in the education sector keeping very important role to modernize and updated the technology into the educational activities. There is a direct social and economic value of ICT education in rural Bangladesh. As the rural people have limited access to resources and public areas due to socio-economic situation, ICT is identified as the key to the re-invention of governments in developing countries, like Bangladesh. For the development of the rural people as well as the country, needs more awareness on ICT education. The rural people suffer from severe discrimination due to lack of information and burden of poverty. This paper made an effort to determine the present status of access to ICT education in rural sector. In this study, I have selected 119 schools (both primary and secondary level) in rural area and conducted a survey on teachers and students. On the base of the primary data, we tried to draw the present circumstances of using ICT in education system in rural Bangladesh.

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I. Introduction

Basically, the concept of Information Communication Technologies ICT is arise to teach the current and rising citizens about computer, communication devices and software and how to operate, run on and built with them. Information and communication technologies (ICT) have become humdrum entities in all aspects of life (Syed Noor-Ul-Amin, 2012).Bangladesh is a developing and third world country .It is also known as the country of poverty, overpopulation and a persistent gender gap in education and literacy. Information Communication Technologies (ICT) in Education in Bangladesh is a multidisciplinary field which has inherent prospects and problems similar to any other innovation .Sufficient evidence demonstrated ICT application benefits in educating disadvantageous communities.

Anupam Kumar Bairagi, S. A. Ahsan Rajon and Tuhin Roy (2011) suggested that To compete with the competitive world, skilled manpower is an enormous foundation of a country .In Bangladesh, many educational institutions (primary, secondary, college, university) have taken steps to expand a better shapes in their education system by utilization of ICTs not only in urban education system but also in rural education system. The most effective way to increase student's knowledge is using more technology (internet).ICT has changed for the rural people in our country, the way to communicate, learn and access service and trade. It is offering more effective means of exchanging knowledge and advancing education. In this paper we want to demonstrate the present situation of ICT education in rural area in Bangladesh.

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II. Objective

By using ICT in education sector, Bangladesh is flourishing to compare with other developing counties in the worldwide. The concept of creating Digital Bangladesh, the government is starting implement to ICT initiatives to revolutionize the education system. There is no rigid agreement on the definition of ICT, as these technologies grow almost daily. As teachers are the builder of the students, they should have proper knowledge about using ICT in education sector (Zuochen Zhang, Dragana Martinovic, 2008).The word "Information and communication technology (ICT)" has three separate words – information, communication and technology. Information means any kind of message written, audio, visual or audio-visual through which a person gets knowledge about a new person, place, thing, situation, or environment. Communication is defined as the way of transferring such message to others which needs a media. It is worthwhile to mention that Rahman, M. A (2004), Information and communication technology (ICT) is the use of modern technology to support the capture, processing, storage and recovery and communication of information, whether in the form of numerical data, text, sound, or image.

Rural people in Bangladesh have limited access to resources and public spheres due to their socio economic situation. They experience discrimination because of lack of access to information and technology. This study made an effort to determine the present status of access to ICT in the rural education. The recent development of information communication technologies (ICT) very much facilitates the flow of information. ICTs are now widely accepted as a

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significant tool to development issues in developing countries like Bangladesh. Our survey was conducted based on the following objectives:

- To understand the rural education based on ICT
- To understand the students and teachers perception on using ICT
- To identify present scenario of ICT education in rural Bangladesh
- To identify what are the potential problems on using ICT

III. Literature Review

The age of using ICT in education sector is not so long. In India, first computer intruded in education level before 1979. In eighties, computer began to be distributed to schools to see the consequence how computer use in education rather than simply educating about computing and then in the mid-nineties, the use of ICT's in primary schools rapidly expanded (Dr. M. M. Gandhi,2013).

Bangladesh faces the challenge of becoming a learning society and ensuring that its citizens are equipped with knowledge of ICT, skills and qualifications they will need in this century.

In last few years, many factors like social security, rural economy, health care facilities, and women empowerment, disaster and emergency response etc. are very much reshaped and influenced by ICTs in Bangladesh as identified in other developing countries (Atiqur Rahman, Mohammed Nayeem Abdullah, Amran Haroon and Rahat Bari Tooheen, 2013).

Anupam Kumar Bairagi,S. A. Ahsan Rajon and Tuhin Roy(2011), Mohammad Ali (2003) and Islam, M. S., & Islam and M. N. (2007, 2009) suggest in their paper, that the globalization of information and knowledge resources is the output of adoption and huge use of Information and Communication Technology (ICT).

So for the betterment of the education system as well as enlargement of life, adoption if ICT has became very important. ICT as a term encompasses a range of human-devised hardware, software and telecommunications technologies that facilitate communication and sharing of information across boundaries of time and place (Dunmill, M. & Arslanagic, A., 2006) and (Tajmary Mahfuz & Subhenur Latif,2013).Though the higher academic institutions of this country are pioneers in adopting and using Information and Communication Technologies but also Bangladesh is one of the overpopulated, underdeveloped countries in the world. Although the Government of Bangladesh is committed to implementing ICT in education, the process is hindered by a number of barriers like, Insufficient funds, Social and Cultural factors, Political factors, Teachers' Attitudes and Beliefs about ICT, Lack of Knowledge and Skill, Lack of Time, etc.(Md. Shahadat Hossain Khan, Mahbub Hasan and Che Kum Clement ,2012).

Besides all these barriers, ICT revolution imposes particular challenges on education systems in Bangladesh (Ali, M., 2003). These challenges reduce to three broad areas. The first has to do with participation in the information society; the second considers how ICT impacts on access, cost effectiveness and quality of education. Miyan, M. A. (2009) suggests that, now private universities are making praiseworthy contributions in development of ICT in Bangladesh.

To overcome their basic problems, many developing countries start using ICT not in education sector but also in prime sector in their countries. Like, India has made economic management their prime agenda and use opportunities provided by the ICT to overcome the problems of rural poverty, inequality, and environmental degradation (Kiangi, G. E.and Tjipangandjara, 1996). Stack, RE and Thousand Oaks. Walsham, G (1995) and Grameenphone Annual Report (2013) have conducted their studies on empowerment and poverty reduction through Village Pay Phone (VPP) scheme which is part of ICT program of Grameen Bank, the village-based micro-finance organization respectively. So the prosper of different sectors in Bangladesh is result of using ICTs.

In modern life, the impact of using ICT draws an important sketch. Especially for the students and modern people, Tajmary Mahfuz and Subhenur Latif (2013) described devices and many support based on ICT like using 3G on mobile have became daily necessity in daily life. A.M.Priyangani Adikari (2013) and Md. Shamimul Islam and Mahmudul Hasan Fouji (2010) also suggested that the trained teacher can keep vital role to create a digital citizen .ICT is also a medium for teaching and learning (Jager, A. K., & Lokman, A. H.1999).

From economic and human development perspective, Bangladesh is one of the rising countries in the world. To create Digital Bangladesh, the government has taken some initiatives to integrate ICT in education system and one of these is to digitize the academic books both in primary and secondary levels and distribute these across the country so that the students in rural areas can download the books from the Internet at free of cost and thereby facilitate the education system. Government also provides training to the teachers and other authority of the rural school to encourage them to use ICT for both academic and administrative purposes (Arifur Rahman Khan, Reza Shahbaz Hadi and Dr. Md. Mahfuz Ashraf, 2013).

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IV. Survey Design and Conduction of Survey

To achieve the objectives of this study we used primary source of information. Primary data have been taken from prepared questionnaire data that include both open ended and close ended questions.

As we want sketch the scenarios of ICT education in rural areas, our survey was conducted in the targeted areas. By using simple random sampling (SRS), the sample was selected. Our sample size consisted of 119 schools. To execute our objectives we designed two questionnaires. One designed for teachers and another for students and was provide to them. Both questionnaires were designed to fulfill our objectives in this research paper. The student's questionnaire designed in such a way that, we can obtain their real situation, problem, probabilities and opportunities of using ICT in education. In teacher's part, we included both close and open ended questions. In terms of data analysis, used SPSS 17.In this paper, I tried to identify the core requirements, constraints of ICT education as well as overview of using ICT in education sector in rural area.

V. Statistical Analysis of Findings

The survey was conducted on both students and teachers on a total of 119 schools at the level primary and secondary as shown in the Table 1. As seen from the survey samples, the following observations are crucial:

- To understand the rural education on ICT, the survey has conducted in four division indifferent rural areas and we have focused uses of computer in schools in different divisions. Teachers sample had to filter due to responses. Besides the sample size is 119 (One Hundred Nineteen)

Table 1 : Number of schools in different divisions

City	Number of school	% of school
Chittagong	27	23
Khulna	56	47
Rajshahi	18	15
Sylhet	18	15
Total	119	100

From the analysis of teacher's questionnaire we can see that 47% schools from Khulna division, 23% from Chittagong, and 15% from Rajshahi and Sylhet division's seen from the Table 1. In that sector we have focused what is the actual condition of ICT in rural areas in Bangladesh.

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Table 2 : Number of schools in different divisions

Using computer	Frequency	Percentage
don't uses computer	10	8.4
Uses computer	109	91.6
Total	119	100

According to the data 91.6% teachers are using computer. This derived fact clearly indicates the demand of usage of Computer by the teachers which is high. This means 8.4% teachers within the sample size of 119 are not able to access despite the demand.

- To identify the participation of students and teachers on ICT education, from table 3 and fig1, shows the about 68% teacher used internet and 32% teacher did not use internet for their work. From table 4 illustrated about 89% students replied positively for computer in educational purpose.

Table 3 : Percentage of Uses internet (teacher)

Internet use	Frequency	Percent
Don't uses Internet	38	31.93
uses internet	81	68.07
Total	119	100

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Table 4 : Requirements of computer in different purposes (student)

purposes of using computer	%
play game	1.30%
watch movie	0.80%
listen music	0.80%
internet browsing	9.60%
education	85.80%
others	1.80%
Total	100.00%

- To recognize present scenario of ICT education in rural areas, questions designed on the number of computer in a school. From table 5 and fig 1 we can say that 28% schools have 2 computers, 13% schools have only 1 computer and 11% schools have 4 computers. That means maximum number of schools has below 5 computers. Alone with that, the teachers were asked about training on computer, among them 89% were untrained.

Table 5 : number of computers in schools

No. of computer in school	Frequency	Percent
1	15	12.6
2	33	27.7
3	5	4.2
4	13	10.9
5	3	2.5
6	2	1.7
10	4	3.4
12	2	1.7
13	3	2.5
15	3	2.5
18	6	5
20	1	0.8
25	5	4.2
42	1	0.8
45	3	2.5
50	1	0.8
Total	119	100

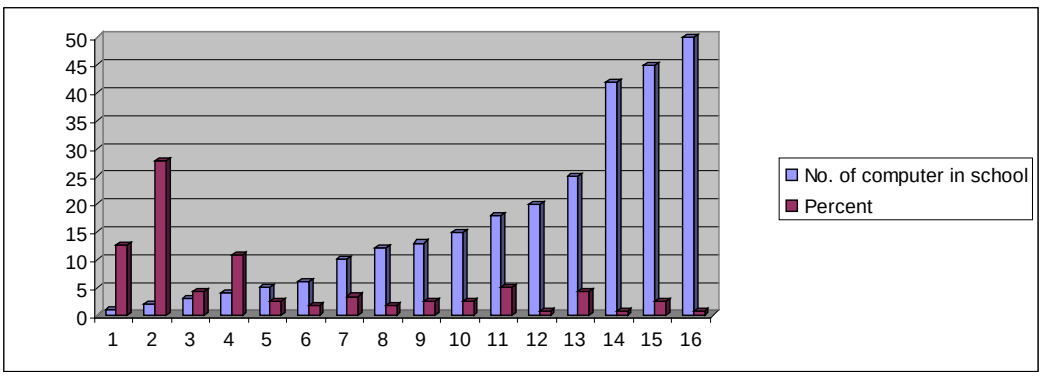

Figure 1 : Number of computers in school

- To identify the potential problems, many tentative answers given and teachers were asked to sorting them on the base of their importance. From table 6 and figure 2,it has been concluded that, about 55% teacher's answered that main constrains of using internet was high price ,the second reason was

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again expensive training of computer and the third height response was unable using of computer which was 26%.

Table 6 : Responses of affordability to use Computer

Reasons	Do not know	Not relevant	Average	Very important
Too much Cost	2	7	24	55
No time at home	2	23	22	7
Can't use computer	4	12	26	26
Expensive computer training	2	12	27	27
Not related to my work	2	18	12	5
Expensive computer training	2	23	7	12

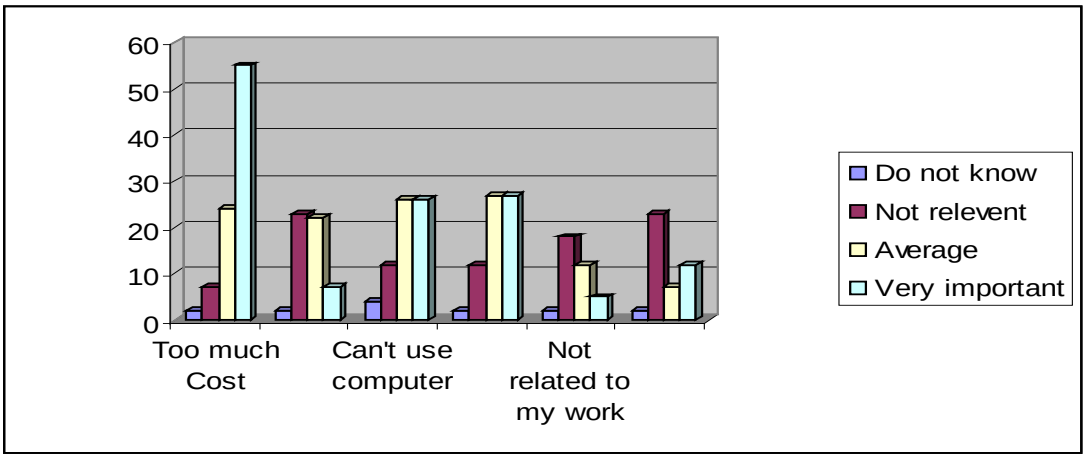

Figure 2 : Responses of affordability to use Computer

IV. Conclusion and Recommendation

World is changing in every moment by the blessing of technology. To enhance the technology, the exploit of ICT education is compulsory. We have to develop the root level, to expand the present scenario, by enrich ICT education in rural Bangladesh. In this context, this study reveals the present situation of ICT education in rural Bangladesh. If proper steps are taken to promote the proper use of ICT education in rural Bangladesh, we can hope to build up an authentic digital Bangladesh.

- It has been found that, the main barrier of using ICT was high cost. Internet is becoming more popular but is affordable to only a small urban section of the population. It is extremely expensive in rural areas where the need for distance education is the most.
- Enough logistic support should be taken within the academic institutions in order to allow all students to have regular access to ICT facilities.
- There is a lack of qualified teachers. There is also a shortage of ICT trained teachers.
- Educational institutions as well as the teachers should be more supportive to establish the students about ICT by highlighting ways through which it can be of great help in enhancing their academic performance.

V. Scope for Further Research

This study is only highlights the present scenarios of ICT education in rural areas. The findings of the research has plenty scope for future analysis. A model could be creating by using correlation with in different factors.

VI. Acknowledgments

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