

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.

Index terms— ICT, rural area, survey, education system, simple random sampling (SRS).

1 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 disadvantaged 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.

2 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

42 to revolutionize the education system. There is no rigid agreement on the definition of ICT, as these technologies
43 grow almost daily. As teachers are the builder of the students, they should have proper knowledge about using
44 ICT in education sector (Zuo Chen Zhang, Dragana Martinovic, 2008). The word "Information and communication
45 technology (ICT)" has three separate words -information, communication and technology. Information means
46 any kind of message written, audio, visual or audio-visual through which a person gets knowledge about a
47 new person, place, thing, situation, or environment. Communication is defined as the way of transferring such
48 message to others which needs a media. It is worthwhile to mention that Rahman, M. A (2004), Information and
49 communication technology (ICT) is the use of modern technology to support the capture, processing, storage
50 and recovery and communication of information, whether in the form of numerical data, text, sound, or image.

51 Rural people in Bangladesh have limited access to resources and public spheres due to their socio economic
52 situation. They experience discrimination because of lack of access to information and technology. This study
53 made an effort to determine the present status of access to ICT in the rural education. The age of using ICT
54 in education sector is not so long. In India, first computer intruded in education level before 1979. In eighties,
55 computer began to be distributed to schools to see the consequence how computer use in education rather than
56 simply educating about computing and then in the mid-nineties, the use of ICT's in primary schools rapidly
57 expanded (Dr. M. M. Gandhi, 2013).

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

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

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

67 So for the betterment of the education system as well as enlargement of life, adoption of ICT has become very
68 important. Besides all these barriers, ICT revolution imposes particular challenges on education systems in
69 Bangladesh (Ali, M., 2003). These challenges reduce to three broad areas. The first has to do with participation
70 in the information society; the second considers how ICT impacts on access, cost effectiveness and quality of
71 education. Miyan, M. A. (2009) suggests that, now private universities are making praiseworthy contributions
72 in development of ICT in Bangladesh.

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

80 In modern life, the impact of using ICT draws an important sketch. Especially for the students and modern
81 people, Tajmury Mahfuz and Subhenur Latif (2013) described devices and many support based on ICT like using
82 3G on mobile have become daily necessity in daily life. A.M. Priyangani Adikari (2013) and Md. Shamimul Islam
83 and Mahmudul Hasan Fouji (2010) also suggested that the trained teacher can keep vital role to create a digital
84 citizen. ICT is also a medium for teaching and learning (Jager, A. K., & Lokman, A. H. 1999).

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

3 IV. Survey Design and Conduction of Survey

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

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

103 4 V. Statistical Analysis of Findings

104 The survey was conducted on both students and teachers on a total of 119 schools at the level primary and
105 secondary as shown in the Table 1. As seen from the survey samples, the following observations are crucial:
106 According to the data 91.6% teachers are using computer. This derived fact clearly indicates the demand of
107 usage of Computer by the teachers which is high. This means 8.4% teachers within the sample size of 119 are
108 not able to access despite the demand.

109 ? To identify the participation of students and teachers on ICT education, from table 3 ? To identify the
110 potential problems, many tentative answers given and teachers were asked to sorting them on the base of their
111 importance. From table 6 and figure 2,it has been concluded that, about 55% teacher's answered that main
112 constrains of using internet was high price ,the second reason was again expensive training of computer and the
113 third height response was unable using of computer which was 26%.

114 5 IV. Conclusion and Recommendation

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

120 ? It has been found that, the main barrier of using ICT was high cost. Internet is becoming more popular
121 but is affordable to only a small urban section of the population. It is extremely expensive in rural areas where
122 the need for distance education is the most. ? Enough logistic support should be taken within the academic
123 institutions in order to allow all students to have regular access to ICT facilities. ? There is a lack of qualified
124 teachers. There is also a shortage of ICT trained teachers.

125 ? Educational institutions as well as the teachers should be more supportive to establish the students about
126 ICT by highlighting ways through which it can be of great help in enhancing their academic performance.

127 6 V. Scope for Further Research

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

130 7 VI. Acknowledgments

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132 survey questions. The study would be incomplete without their assistance.

133 8 References Références Referencias

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Figure 1: A

range of human-devised hardware, software and telecommunications 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 underdeveloped countries in the world.

Figure 2:

Figure 3: ?

1

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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Figure 4: Table 1 :

2

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

Figure 5: Table 2 :

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.

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Figure 6:

3

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

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Figure 7: Table 3 :

4

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. Along 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

Figure 8: Table 4 :

6

Reasons	Do not know	Not relevant	Average	Very im- portant
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 9: Table 6 :

- 135 [Ali ()] , Mohammad Ali . *ASPBAE RESEARCH ON INFORMATION AND COMMUNICATION TECHNOLOGY*. Dhaka Ahsania Mission 2003. (ASPBAE Research on Information and Community Technology)
- 136
- 137 [Ali ()] , M Ali . *ASPBAE Research on Information and Community Technology (Bangladesh)*. Asian South
138 Pacific Bureau of Adult Education 2003. ASPBAE.
- 139 [Grameenphone Annual Report ()] , *Grameenphone Annual Report 2013*.
- 140 [Mahfuz and Latif (2013)] ‘An Assessment of 3G Mobile Service Acceptance in Bangladesh’. Tajmary Mahfuz ,
141 Subhenur Latif . *International Journal of Advanced Computer Science and Applications(IJACSA)* 2158-107X.
142 2013. November 2013. 4 (11) .
- 143 [Priyangani Adikari ()] ‘Determinants of Mobile Phone Demand among University Students’. A M Priyangani
144 Adikari . *Global Journal of HUMAN SOCIAL SCIENCE Economics* 2013. 2013. 13. (Issue 5 Version 1.0 Year)
- 145 [Knowledge and Research] *ICT as a Change Agent for Education*, Worldwide Knowledge , Experience Research
146 . www.nyu.edu/classes/keefe/waoe/amins.pdf
- 147 [Atiqur Rahman, Mohammed Nayeem Abdullah, Amran Haroon and Rahat Bari Tooheen ()] ‘ICT Impact on
148 Socio-economic Conditions of Rural Bangladesh’. 10.11648/j.jwer.20130201.11. *Journal of World Economic
149 Research* Atiqur Rahman, Mohammed Nayeem Abdullah, Amran Haroon and Rahat Bari Tooheen (ed.) 2013.
150 2013. 2 (1) p. .
- 151 [Dunmill and Arslanagic ()] *ICT in Arts Education, Literature Review*, M Dunmill , A Arslanagic . 2006. New
152 Zealand: University of Canterbury
- 153 [Zhang and Martinovic ()] ‘ICT in teacher education: Examining needs, expectations and attitudes’. Zuo Chen
154 Zhang , Dragana Martinovic . *Canadian Journal of Learning and Technology* 2008. Spring/printemps,2008.
155 34.
- 156 [Jager and Lokman (1999)] *Impacts of ICT in education: The role of the teacher and teacher training*, A K Jager
157 , A H Lokman . 1999. 22 -25 September, 1999. Lahti, Finland.
- 158 [Miyan (2009)] *Improving efficiency of the private universities*. *The New Nation, Friday*, M A Miyan . <http://nation.ittefaq.com/issues/2009/01/02/news0701.htm> 2009. January 2.
- 159
- 160 [Dr and Gandhi ()] ‘INFORMATION COMMUNICATION TECHNOLOGY (ICT) INTEGRATED HIGHER
161 EDUCATION IN INDIA’. M M Dr , Gandhi . *International Journal of Information Technology & Computer
162 Sciences Perspectives* 2013. 2013. 2 (3) .
- 163 [Stack and Oaks ()] *Information Systems Research, the art of case study research*, Thousand Stack , Oaks . 1995.
164 Sage Publications. 6 p. . (The Emergence of Interpretive in IS Research)
- 165 [Kumar Bairagi et al. (2011)] Anupam Kumar Bairagi , S A Ahsan Rajon , Tuhin Roy . *STATUS AND
166 ROLE OF ICT IN EDUCATIONAL INSTITUTION TO BUILD DIGITAL SOCIETY IN BANGLADESH:
167 PERSPECTIVE OF A DIVISIONAL CITY*, 2011. Sept 2011.
- 168 [Md et al. ()] Md , Mahbub Shahadat Hossain Khan , Che Kum Hasan , Clement . [Http://www.e-iji.net/
169 dosyalar/iji_2012_2_4.pdf](http://www.e-iji.net/dosyalar/iji_2012_2_4.pdf) *BARRIERS TO THE INTRODUCTION OF ICT INTO EDUCATION IN
170 DEVELOPING COUNTRIES:THE EXAMPLE OF BANGLADESH*, 2012.
- 171 [Kiangi (ed.) ()] *Opportunities for information technology in Enhancing socio-economic development of a
172 developing country*, G E Kiangi , Tjipangandjara . M. Odedra-Straub (ed.) 1996. Global Information
173 Technology and Socio-Economic Development .Nashua. Ivy League Publishing. p. .
- 174 [Rahman (2004)] *Role of Information & Communication Technology (ICT) in Rural Poverty Alleviation. A
175 Dissertation submitted to the BRAC Development Institute*, M Rahman . December, 2004. p. . BRAC
176 University
- 177 [Arifur Rahman Khan et al. ()] ‘The Impact of ICT on Education: A Study on Rural Schools’. Reza Shahbaz
178 Arifur Rahman Khan , Dr Hadi , Md , Ashraf . *Communication in Information science and Management
179 Engineering (CISME)* 2224- 7785. 2013. Online.
- 180 [Md. Shamimul Islam and Mahmudul Hasan Fouji (ed.) (2010)] *The Impact of ICT on Students Performance:
181 A Case Study of*, Md. Shamimul Islam and Mahmudul Hasan Fouji (ed.) 2010. July-December, 2010. 4. ASA
182 University Bangladesh.ASA University Review
- 183 [Islam and Islam ()] *Use of ICT in Libraries: An Empirical Study of Selected Libraries in Bangladesh, Library
184 Philosophy and Practice*2007, M S Islam , M N Islam . [http://tojde.anadolu.edu.tr/tojde21/
185 articles/islam.htm](http://tojde.anadolu.edu.tr/tojde21/articles/islam.htm) 2007. 2009. January 2009.