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## Teacher Efficacy on the Use of ICT in Secondary School of Bangladesh: A Study of Cumilla District

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### **Abstract:**

*For many years, education has been treated as one of the main keys for human welfare economic development and improvements. This research aims to explore the extent to which teachers are using information and communication technology (ICT) as well as their attitude towards it. ICT seems to have the capability of changing the present problem of Bangladesh education sectors.*

*This research is to identify the current ICT status on secondary education of Bangladesh especially secondary schools in Cumilla district. Data were collected from teachers and students by using semi-structured questionnaires and interviews. The result shows that the teacher's competencies in the use of ICT are very low in rural areas and this is attributed to the lack of basic ICT tools, adequate computer literate, and proper ICT training.*

**Keywords:** ICT, education, learning, Cumilla, Bangladesh

### **1. Introduction**

Every orb of life has been changed with progression of technological improvement in teaching and learning sector from the very beginning of the 21st century. For developed nation use of Information and Communication Technology (ICT) has become an inseparable part in the process of teaching and learning. It can drive teaching towards 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 in 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. Hawkrige 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.

Information and Communication Technology has brought a robust change in society. It has connected the whole world and has influenced the economic and social sectors. ICT has produced a glittering change in both teaching and learning. Bangladesh, like many other countries, is investing heavily (estimated BDT 17,959 corer annually) in the education system considering as one of the core strategies to alleviate poverty and facilitate development including to raise the ICT skills of Bangladeshis and move towards the information society. UNESCO (2007) describes ICT as a tool of education that can complement, enrich and transform education for the better. ICT can provide access to all kinds of global resources and can facilitate secure collaboration in modern world education. Different teaching and learning materials can be shared with the teachers and students. Facilitators can discuss their ideas about innovative classroom practices and their research works related to this (Parvin, 2013). According to policymakers worldwide, ICT in schools should lead to significant educational and pedagogical outcomes, beneficial for both students and teachers (Jimoyiannis&Komis, 2007). Nowadays, the actual impact of the integration of ICT into everyday classroom practices constitutes an essential question. A significant amount of research has shown that the use of ICT in education can increase students' motivation and deepen understanding, promote active, collaborative and lifelong learning, offer shared working resources and better access to information, and help them to think and communicate creatively (Jonassen, 2000; Webb, 2005). In other words, ICT appears to be changing the very nature of teaching and learning. With emerging technologies, the teaching profession could evolve from an emphasis on teacher-centered instruction to creating more student-centered interactive learning environments. ICT helps to build a more knowledgeable workforce by engaging students more in their studies and create the ability to use modern equipment which is more productive than previous versions. Innovation in the classroom through ICT brings creativity, distribution, and handling of knowledge properly which makes an impact on students'

future. ICT helps students to solve complex and real-world problems which add more value to society and also on the economy (Goswami, 2014).

### 1.1. Statement of the Research Problem

Bangladesh is still facing huge resistant in case of implementing ICT in the secondary schools. Infrastructure, perception of using it, policies are most prominent reason behind it. Actual utilization of ICT depends on not only the capability of the user but also on the accessibility of these. For this country, rural secondary schools are suffering the most. Computer literacy is the most important factor for it also. As per Ajayi (2008), proper government intervention is very important regarding this. Currently, there is a paucity of information is available on the use of ICT by secondary school computer teachers and students in Bangladesh. Because, there has not sufficient ICT facilities, inefficiency in teacher's competency or resistance from the side of the teachers. This study aims to check the understanding of the current perceptions by all the stakeholders as well as about the policies regarding the use of this.

### 1.2. Justification of the Research

A statistical survey report released by the IOSR Journal of Business and Management reveals that the interest in ICT in the Sylhet division in Bangladesh is very low (IOSR-JBM, 2017) due to challenges of the research. In this time, ICT is gaining huge popularity. So, if it can be integrated into education it will give a good speed and progress in education sector. This study along with finding the perception also finds the challenges of ICT facilities in the national exams such that remedies can be find out. This study also seeks more intervention from the federal government and other relevant ICT facilities donor agencies.

## 2. Objectives of the Research

### 2.1. Overall Objective

The main objective of this study is to measure the teacher's competencies in the use of ICT in secondary schools in Bangladesh.

### 2.2. Specific Objective

The specific objectives are

- To explore the overall perceptions of teachers and students on the availability and usage of ICT facilities.
- To find out the association between the factors related to the competencies of teachers.
- To test the significance of different factors associated with having teacher's and student's ICT competencies.

## 3. Research Question

To understand the present status of using ICT in secondary schools in Bangladesh, the study will mainly deal with the question of how ICT is integrated into secondary education with current education.

- R.Q: How teacher's competencies affected student learning?

## 4. Research Hypothesis

The research hypothesis is

$H_0$  : To measure teacher's competencies in the use of ICT in secondary schools in Bangladesh.

$H_1$  : To find out the significant relationship between teacher's competencies and student learning

$H_2$  : There is a significant difference among a different category of region (rural, semi-urban and urban)

## 5. Literature Review

ICT is considered as an essential means to promote new methods of instruction in teaching and learning. In the last few decades, many studies have been undertaken on ICT implementation in education and reformation of instruction technology (Drent&Meelissen, 2008). Most of them found some positive impact on students' learning because of the use of ICT (Hattie, 2009, Mumtaz, 2000). Technology has been identified as an innovative and exciting tool of instruction that shifts the paradigm to student-centric learning that supports learners to understand topics better (Watson & Watson, 2011). Conversely, it is not possible to such positive impacts by only using technologies in the classroom without making an environment and without effective use of ICT for learning. It is not possible to create exciting new learning situations that can change the classroom environment by only putting computers in the classroom (IIEP, 1995; cited in (Sanyal, 2001).

Darling-Hammond (1997) & Shulman (1986) stated that 'Educational researchers have identified two kinds of teacher knowledge that can significantly improve their practice: their understanding of their subject matter and the pedagogical knowledge about how students learn the subject and how it is best taught.' Teachers must have in-depth knowledge of their respective subjects, and then they can incorporate their pedagogical expertise with it to present the digital content by using ICT. Teachers' professional development in these areas is connected to the effectiveness of their classroom instruction.

Every country needs a definite policy to accomplish the vision of ICT usage in education. Bangladesh has also emphasized on implementing ICT in almost every sector of the country as the Government of Bangladesh (GOB) has intended to make the nation significantly digital within 2021. As a consequence, the latest education policy of the year

2010 came up with a blueprint for integrating ICT in education. Meanwhile, only the formulation of policy does not ensure the exercise of it in reality. Regular and effective practices can ensure the successful implementation of ICT policy in every level of education. The researcher has the intent to find out how our secondary schools in Bangladesh integrating ICT in their teaching and learning. This study will give an idea of how consciously schools are following the goals of ICT integration according to education policy. In this study, the researcher will figure out the extent of use of ICT in both teaching and learning, the impact of using ICT in classroom practices and also will unearth the challenges in successfully implementing the use of ICT in education. Few other studies have identified various difficulties in integrating ICT in Bangladesh's education sector; the researcher aimed to look at whether these remain or have been overcome by GOB. He also attempted to dig out the present challenges to extend the incorporation of ICT in education.

## 6. Research Methodology

### 6.1. Data Collection Period

In this study primary data has been collected within the period of 5<sup>th</sup> February to 15<sup>th</sup> February 2020. The study is empirical and explorative and therefore the information presented is based on primary data. To fulfill the purpose of this research, primary data is collected by using questionnaires and interviews. The questionnaires have been divided into two major parts, one is for teachers and others for students. We have used purposive sampling to select secondary schools. The researcher visited the thirty (30) different secondary schools to take the information from the students and the teacher with the teacher's ICT competencies.

### 6.2. Study Area

This study selected the Cumilla district as a study area. There is different govt., MPO and Non-govt. the school is situated here. This study uses data of 5<sup>th</sup> February to 15<sup>th</sup> February 2020 from Cumilla zone based secondary schools situated in rural, semi-urban and urban.

### 6.3. Study Population

All the students and teachers of the secondary schools situated in rural, semi-urban and urban in Cumilla zone qualify as population for this study. From 30 schools, a total of 149 punctual and serious students have been selected. Five students are randomly selected from each school. Among which 74 are males and 75 are females between the ages of 12-16 years. They truly act as a representative for their schools. A total of 89 which consists of 63 males and 26 females from each of the schools have been selected here. The average age group for them is 45 years. Three teachers are also selected from each school.

### 6.4. Procedure

For this research study, we have chosen three teachers from three different groups including Arts, Commerce and Science and five students from different classes/groups (including class seven, class eight, Arts, Commerce and Science) of 30 different secondary schools in Cumilla. Five students are picked at random (with the help of their teachers). We have used purposive sampling to select secondary schools. Permission has been taken from each teacher and student before conducting interviews and focus group discussions.

### 6.5. Reliability of Data

Data reliability is the accuracy and completeness of computer-processed data, given the uses they are intended for. Cronbach's Alpha Coefficient, most common measure of internal consistency has been calculated using SPSS. Here, for students Cronbach's Alpha is 0.640, which indicates a moderate level of internal consistency for our scale with this specific sample and also for the teacher's questionnaire, Cronbach's Alpha is 0.770, which indicates a high level of internal consistency for our scale with this specific sample. According to Pallant (2005), 0.70 or above denotes high consistency, while values ranges from 0.60 to 0.70 is satisfactory and sufficient.

## 7. Finding and Discussion

### 7.1. Gender and Class/Group of Respondents

75 are females and 74 respondents are male among 149 students. It represents 50.3% and 49.7% for male and female respectively. The teachers, women take only 29.2% with a population of 26 whereas the men take 63 with 70.8%. For both students and teachers, arts, science and commerce groups have been segregated. 30 teachers from each group, excepted only one less teacher in arts have been selected for this study. Out of the 149 students 30 students are from each of the groups while 29 are from the arts group because one respondent is missing.

### 7.2. Availability and Usage of ICT Facilities (According to Student's Perception)

The study outlines the percentage and median value on the student's general opinions on the availability and usage of ICT facilities in their schools derived from the questionnaire. The median value of CBT in exams is 1 and some of the students use a dedicated school website to know their JSC and SSC results. The use of smart boards and internet connection is reported to be absent completely in virtually all of the schools with the highest percentage of 93.3 and 98 respectively. Most of the respondent tells that the logistic support item used in ICT competencies is very limited.

Item	Never (%)	Rarely (%)	Sometimes (%)	Always (%)	Median
Use of computers either in offices or classes	5.4	20.1	46.3	28.2	3
Bringing personal smart/digital devices such as phones, laptop, and I-pad to the class	100	0	0	0	1
Being allowed to the computer room/lab for practical	49	20.8	18.8	11.4	1
Use of Photocopy machines scanner and printers	8.1	21.5	35	35.4	4
Computer Based Test (CBT) in exams	76.6	8.7	13.4	1.3	1
Use smart/white board in a class	93.3	2.7	4	0	1
Use of e-mail or fax machine to send or receive messages	16.8	16.8	30.2	36.2	4
Use of free LAN internet within the school	98	2	0	0	1
Use of dedicated school web site which can be accessed from anywhere	51	26.8	12.8	9.4	1

Table 1: Student's Opinions on the Availability and Usage of ICT Facilities Performance

It is revealed from the table below, that secondary school students in the Cumilla zone, 65.1% have no software knowledge and only 10.7% conduct assignments in the computer due to lack of logistic support items and well-trained teachers. Also, for studying purpose the percentage of students search anything in Google is 55%.

Item	Yes (%)	No (%)	Median
Do you have any software knowledge?	34.9	65.1	1
For your studying purpose do you search anything in Google?	55	45	2
Do you conduct any assignment on a computer?	10.7	89.3	1

Table 2: Performance on the Use of ICT

### 7.3. Student's Opinions on the Availability and Usage of ICT Facilities according to a Different Region of School

Most of the semi-urban and urban secondary schools and offices of Cumilla zone use scanners, computers, photocopying machines in day today's life. But in rural, students from secondary school are not get-well accessibility of these. In secondary school, students are not permitted to bring their smart devices. Very few are allowed to use computers in lab and participate in any computer-based test. Smart boards and internet connection are not available. Moreover, only small amount of schools can have a dedicated school website to know updates from the school.

### 7.4. Teacher's Competencies on the Use of ICT Facilities

To discuss the level of competencies a teacher can possesses, table 3 reveals that, 41.6% and 38.2% of teachers are using projectors, PowerPoint respectively. While on the other hand, the teachers demonstrate a low level of competence with the maximum percentage of 84.3% and 77.6% in never using tape recorders and computerized databases in exams and records department respectively. Teachers are frequently used digital video/audio recorder as a teaching tool.

Item	Never (%)	Rarely (%)	Sometimes (%)	Always (%)	Median
Do you use a projector in every lesson?	12.3	27	41.6	19.1	3
Do you use a digital video/audio recorder in your teaching?	46.1	22.5	23.6	7.8	1
Do you use PowerPoint as a teaching tool in your class?	18	25.8	38.2	18	3
Do you use tape recorders to improve students' listening skills?	84.3	9	2.2	4.5	1
Do you use a computerized database in exams and records department?	77.6	14.6	6.7	1.1	1

Table 3: Teacher's Competencies on the Use of ICT

## 8. Conclusion

The total of 30 schools spread across the region is randomly selected. One hundred forty-nine students have been used by selecting five students randomly from an individual school. These sample is consisting of 50% are males and 12-

16 years females. A total of three teachers have been selected from an individual school which is giving a total sample size of eighty-nine. It has

70% males and others are female with ages ranging from 25 to 64 years. In our study, 40% of schools are belonging to urban regions and 36.7% and 23.3% of schools are from semi-urban and rural respectively. Most of the student's father's/mother's occupation is business of the total population and rest of the percentage for Government employee, non-government employee, and others. Also, most of the teacher's and students' family income lies in the range of 20000-30000 and a few people have an income level of more than 30000. According to students' perception, the use of the computer, photocopy machine, scanner, and email or fax machine in the school office room is moderate. Neither of the secondary school permits to bring smart devices such as phones, laptops, and I-pad to the class. The use of the smart board and free LAN internet for students is very poor. Teachers frequently take the computer-based test in exams. Some of the students use a dedicated school website to know their JSC and SSC results. Most of the students have no software knowledge and also, they don't know how they conduct their assignments on the computer.

In this study, 55% of students have the searching ability on Google. Computers, photocopying instruments, scanners are readily available in most of the semi-urban and urban secondary schools in Cumilla zone offices and schools. Teachers are well-equipped to use e-mail or fax machine. Rural has the completely different picture. Very little number of students has the accessibility of using computers. None of the schools has smart class room due to no internet connection. 41.6% and 38.2% are the percentages regarding the usages of projectors, PowerPoint respectively. 29.2% students have the ability to use computers. While on the other hand, the teachers demonstrate a low level of competence with the maximum percentage of 84.3% and 77.6% in never using tape recorders and computerized databases in exams and records department respectively. Teachers are frequently used digital video/audio recorder as a teaching tool. Rural teachers have a low level of competence in the use of ICT facilities compare to semi-urban and urban teachers. Teachers working in Cumilla zone are somehow not to a great extent is associated with the government's educational policies regarding ICT. Government undertaken schools are suffering due to this only. Compared to semi-urban and urban, rural teachers are suffering a lot due to unavailability of ICT training and skill enhancing facilities.

## 9. Recommendations

Some of the key recommendations of this study are presenting here.

- More logistic support items should be supplied to each and every school.
- Government, private organizations and NGOs should arrange a comprehensive computer and ICT training program for all the teachers.
- Monitoring and mentoring activities are needed to increase for ensuring that the teachers are conducting the ICT classes according to the circular.
- Ministry of education should closely supervise all secondary schools regularly.

## 10. References

- i. Ajayi, I. A. (2008). Towards effective use of information and communication technology for teaching in Nigeria colleges of education. *Asian J. mf.techno* 7(5): 210-214.
- ii. Drent, M., & Meelissen, M. (2008). Which factors obstruct or stimulate teacher educators to use ICT innovatively? *Computers & Education*, 51(1), 187-199.
- iii. Ehrmann, S. C. (1994, December 14-16). *Responding to the triple challenge facing post-secondary education: Access, quality, costs, report prepared for the OECD*. International Conference, Paris.
- iv. Goswami, U. (2014). *Cognition in children*: Psychology Press.
- v. Hawkrige, D., Jawoski, J., & McMohan, H. (1990). *Computers in the Third World schools: Examples, experiences, and issues*. London.
- vi. Hattie, J. (2009). *Visible learning: A synthesis of meta-analyses in education*: London: Routledge.
- vii. Jimoyiannis, A., & Komis, V. (2007). Examining teachers' beliefs about ICT in education: Implications of a teacher preparation programme. *Teacher development*, 11(2), 149-173.
- viii. Jonassen, D. H. (2000). Transforming learning with technology: Beyond modernism and post-modernism or whoever controls the technology creates reality. *Educational Technology*, 40(2), 21-25.
- ix. Parvin, S. (2013). Integrations of ICT in the education sector for the advancement of the developing country: some challenges and recommendations-Bangladesh perspective. *International Journal of Computer Science & Information Technology*, 5(4), 81.
- x. Sanyal, B. C. (2001). New functions of higher education and ICT to achieve education for all: Paris: UNESCO International Institute for Educational Planning. Available: <http://literacy.org/products/ili/pdf/UTLPSanyal.pdf>.
- xi. UNESCO, E. F. (2007). *Strong foundations: Early childhood care and education*. Paris, France: UNESCO.
- xii. Volman, M., & Eck, V. E. (2001). Gender equity and information technology in education: The second decade. *Review of Educational Research*, 71, 613-634.
- xiii. Watson, S. L., & Watson, W. R. (2011). The role of technology and computer-based instruction in a disadvantaged alternative school's culture of learning. *Computers in the Schools*, 28(1), 39-55.