

Impact of Information and Communication Technology on the Secondary and Higher Secondary Students' Education: Bangladeshi Teachers' Thoughts

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ABSTRACT

It is the era of Information and Communication Technology (ICT). With the help of ICT education system has become easier. Present study has conducted to find out the impacts of ICT on the education of secondary and higher secondary level students, to assess the role of ICT in order to change the education system and education quality of Bangladesh as well as to identify the causes of barriers in utilizing ICT in the education sector of secondary and higher secondary level students in Bangladesh. Here the research design of the present study is survey type. Data were collected from nine stake holders/groups of school and college related person. Nine types of stake holders/groups were selected by purposive random sampling within urban and rural area of Dhaka district and Barisal district in Bangladesh. Forty Schools & Colleges were selected from the study area. 20 Principals, 20 Vice-Principals, 20 Lecturers, 20 Headmasters, 20 Assistant Headmasters, 20 Senior Teachers, 20 Assistant Teachers, 413 Students and 40 Guardians were selected. So, total 580 respondents were selected. Data were collected from primary and secondary sources. Collected data were analyzed by using computer program Statistical Package for the Social Sciences (SPSS). From the result, it was found that about one-fourth of the students use computers in the institutions but four-fifth of the students uses computers, mobile phones, internet etc. personally at their houses up to 6 hours. Some of the students utilize ICT for education purposes. They use ICT for composing, making slides, understanding subject related topics easily, finding information using internet. But it is matter of concern that most of the students don't utilize ICT for education purposes. They waste their time everyday in playing games as well as for using Facebook, Viber, Whatsapp, and other websites for enjoying songs, movies etc. According to 40.4% students' opinion, using ICT for a longer period of time hampers their study.

The results also show that in many schools and colleges in urban area, ICT is using to take few classes in the classrooms. Some famous schools and colleges use ICT to take more classes. On the other hand in rural area ICT is used to take very few classes in the classrooms. For not using ICT properly in institutions and houses, the positive impacts of ICT is not enough on the education of secondary and higher secondary students. The education system and education quality of Bangladesh is changing day by day because of using ICT. Now students can get pictures, videos and information by using ICT. Teachers are taking classes by ICT components like Multimedia Projector, Over Head Projector for quality learning. All schools and colleges are taking steps for establishing ICT labs for quality education and changing education system. Teachers are being trained in computer and are learning to make slides and teaching techniques. Many schools and colleges have compulsory rules for using ICT while taking classes by teachers. But results of secondary and higher secondary students in ICT subject is not satisfactory because in text book of ICT, topics are not explained elaborately. Besides, there is lack of practical learning opportunity. Students' learning in most of the Institutions is not properly ensured due to lack of electricity, teachers' effort, well furnished ICT lab, etc.

Government should ensure connection and uninterrupted electricity supply in all secondary and higher secondary educational institutions during class times. Institutions should appoint adequate number of skilled and trained ICT teachers and technicians. All institutions should provide well equipped ICT lab and infrastructure as well job opportunity. Teachers should take more classes by using ICT, Institution authority should ensure this. Students should not be given android phone before their passing of HSC. Guardians should observe and monitor their children at the time of their using ICT.

Key Words: *Impact, Information and Communication Technology, Education, Student, Teacher, Class, Social Media, Smart Phone, Computer*

INTRODUCTION

Bangladesh has been associated with the information technology highway submarine cable. Bangladesh has declared 2006 as the 'Year of information technology'. For this reason, the subject of 'Information and communication technology' has been made compulsory for secondary and higher secondary level in the national education policy 2010. The government has been working hard for implementing the project of 'Digital Bangladesh' since 2012. Besides, skilled human resources and its proper utilization will be ensured at the grass root levels by spreading the light of ICT. We utilize ICT for almost every sector of work in Bangladesh. Moreover, in the secondary and higher secondary level of education are using ICT based digital board, computer, internet, projector, mobile phone etc. However, it has not yet to cover all schools and colleges of Bangladesh. Education is the process of facilitating learning, or the acquisition of knowledge, skills, values, beliefs, and habits. A nation's backbone is Education. Good education is essential for a well-run society. There is no alternate to open the closed door of knowledge without education. Education system changes with the change of time. Bangladesh education system is developing day by day using ICT. ICT stands for Information and Communication Technologies. It means 'diverse set of technologies tools and resources used to communicate and to create, disseminate, store and manage Information'. It includes computers, internet, telephone systems, radio, television, projector and satellite communications etc.

Education is the backbone and the precondition to a national development. Good education is essential for every society, every country. There are no alternate to open the closed door of knowledge without education. Education system changes with the time. Developed countries have achieved unprecedented progress and success in education fields by utilizing Information and Communication Technology (ICT). According to the aims and objectives of education policy, ICT curriculum has been developed by subject specialists and curriculum specialists. It is expected that if a student read ICT textbook from class six to twelve, they can learn and aware of many things. Such as they can learn about the importance of ICT, computer oriented devices, safe and ethical use of ICT, word processing, use of the internet in education and daily life, use of spreadsheet, computer network, multimedia and graphics, use of database, concept of global village, contemporary trends of ICT, impact of ICT on social life, communication systems and networking, number systems and digital devices, web design and HTML, programming language, database management system etc. By that time e-commerce, e-governance concept has introduced as well as skilled human resources and its proper utilization will create at the grassroots level by using the spread of the light of the huge potential of ICT. Now in everywhere of Bangladesh for every type of work ICT is utilized. Many schools and colleges in Bangladesh are using ICT based digital board, computer, internet, projector etc for the best learning outcome.

JUSTIFICATION OF THE STUDY

Bangladesh is progressing to use ICT in education sectors. There are many positive and negative impact of ICT on the education of secondary and higher secondary students, guardians and society. There are many problems to use ICT in many schools and colleges in Bangladesh. Generally in Bangladesh most of the students acquire theoretically knowledge from their textbook and traditional way. Students cannot be expert by practical classes for the limitations of our educational institutions and guardians. Students cannot use properly their theoretical knowledge in their arena. So our national development is not increasing as well as our expectation.

Many students are using ICT for many immoral purposes and unexpected way. Expert ICT teacher, electricity, computer, internet, projector, digital board etc are not available in many schools, colleges, houses of Bangladesh. The economic condition of many guardians, schools and colleges of Bangladesh are not good. So ICT can't use in many schools, colleges and students. It is the demand of time to find out the impact of information technology on the education of secondary and higher secondary students and guardians in Bangladesh. In the context, the present study needs to assess the role of information technology to change the education system and education quality. The study also identify the causes of barrier in information technology utilization of secondary and higher secondary level. Therefore, the study finds out the answers of some questions, to solve problems of secondary and higher secondary level education system. The education system and policy of Bangladesh has gradually improved by the scientific ways. However, this type of study is necessary to find out the overall ICT status of afore said level of education. This type of study will be helpful to make policy and redesign of the ICT system in education sector.

OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

1. To find out the impacts of ICT on the education of secondary and higher secondary level students.
2. To assess the role of ICT in order to change the education system and education quality of Bangladesh.
3. To identify the causes of barriers in utilizing ICT in the education sector of secondary and higher secondary level students in Bangladesh.

METHODOLOGY OF THE STUDY

Research Design

The choice of an appropriate research design is essential for a scientific study since it gives a framework of what the researcher do from setting the research question to the operational implications of the data analysis. A research design is 'the arrangements of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure' (Selltiz 1965 cited in Aminuzzaman 1991, p.53). The study is focused to evaluate the effect of information technology in the change of education system in Bangladesh and whether the use of mobile and internet is barriers for good results. Hence, descriptive and analytical research designs have been chosen. Because descriptive research design helps to describe the current practices and events while analytical research design enables to establish relationship between variables (Aminuzzaman 1991). Here the research design of the present study is survey type. The study design has to be a quasi-experiment one. Data were collected from nine stake holders/groups of school and college related person (beneficiary and without beneficiary) and compared through cross tables to test study. Nine types of stake holders/groups has selected by purposive random sampling within two divisions rural and urban area in Bangladesh. To examine the other objectives and hypothesis based on the collected from the representatives of teachers, guardians and students.

Study Area

The study was conducted at urban and rural area of Dhaka district and Barisal district in Bangladesh. In Bangladesh, there are eight divisions. The selected study areas weighted for selection due to researcher working place in Dhaka as well as by birth in Barisal. So it was easily access in the field, participate, observation and its interviews from the sample. However, in the field of urban and rural, the study has tried to understand in depth of the problem ICT and compare between urban as well.

Variables

A variable is a property or characteristic whose degree or form varies across a set of objects in a given situation, such as examination result, level of education, gender, income, age, etc. In research, variability of an event depends on theoretical framework. Same event might be variable in one study but constant in another. Variables are of two types. a) Independent variable and b) Dependent variable.

a) Independent variable: Independent variables are those variables which don't depend upon any other variable. In this research, Information and Communication Technology (ICT) is an independent variable.

b) Dependent variables: Dependent variables are those variables which depend upon any other variable. In this research all categories of respondents. Principal, Vice-Principal, Head Master, Assistant Head Master, Subject Teachers, Students, Guardians are the dependent Variables on ICT.

Sampling Method

Basically, randomly purposive sampling method was used in the study so as to get the best information to achieve the objectives of the study. This method gave flexibility to the researcher to pick up only people who are likely to have the required information and be willing to share it. Moreover, the sampling method helped to ensure representation of different variation of service providers as well as service seekers. In other words, heterogeneity in the composition of sample of service seekers and providers (age, sex, senior-junior officials, education, and profession) was attempted to maintain as possible. Therefore in this study a combination of quantitative and qualitative methods were used. The question might arise why combination of these methods were used. Because as Creswell (1994:177) suggests, that it is advantageous to a researcher to combine methods to better understand a concept being tested or explored. Each approach has its strengths and its weaknesses, and reliance on anyone method is not appropriate. Therefore, in this research quantitative and qualitative research was used to better understanding as well as in depth to know the domain of the study.

Sampling Technique

Purposive sampling is a sampling technique in which the study relies on judgment when choosing members of population to participate in the study. Purposive sampling is a non-probability sampling method and it occurs

when “elements selected for the sample are chosen by the judgment of the researcher. Researchers often believe that they can obtain a representative sample by using a sound judgment, which will result in saving time and money”.¹ In this research purposive sampling method was used.

Sample Size

580 people from the stake holders in selected areas. Break-up of sampling technique and sampling distribution have given in table 1 and table 2. The study area and sample of different stakeholders are proportionately distributed accept students and guardians. (Table 1 and Table 2)

Table 1: Selection of the areas

Division	Number of Schools & Colleges		Total Schools & Colleges
	Urban	Rural	
Dhaka & Barisal	20	20	40

Table 2: Sample distribution

Principal	Vice-principal	Lecturer/ asst. professor	Head master	Asst. head master	Senior teacher	Asst. teacher	Total
20	20	20	20	20	20	20	140

Sources of Data

Generally, there are two different sources of collecting data, viz., primary sources and secondary sources. The present study is based on both primary and secondary sources of data. Primary data were collected from the respondents of the study area directly using different data collection techniques. On the other hand, the study has used different relevant publications, dissertations, books, journal articles, reports, and websites etc. as sources of secondary data. The data were collected from secondary sources must be useful to cross validate primary data and also to analyze the relationship among variables. Primary data were collected from the particular areas in urban and rural areas in Bangladesh.

Data Collection Method

The study conducted based on both primary and secondary data. Primary data were collected through interviews and Questionnaire survey. Structured questionnaire containing both open and closed ended to be used. A survey through a standardized questionnaire was conducted to collect both quantitative and qualitative information from. Three questionnaires were used for collecting primary data such as students, teachers and guardians for interviewed through this survey. The semi-structured interviews have to be used for conducting with the policy makers, administrators, education experts and founders. These provided inputs to see the impact of the policies related to schools and colleges and the quality of education. Secondary data and information were collected besides the primary sources side by side secondary data were gathered from journal articles, published books, government documents, education commissions' report, policies, reports of various committees related to higher education etc. At the same time the present study has collected qualitative data through face to face interview by using a check list, Case study and Key Information Interview (KII).

Questionnaire Survey

For unique and exploratory research new information must be required. Questionnaire survey is the easiest and most widely use instrument for data collection in this regard. This method allows the researcher to come in direct contact with the respondents, to observe their attitude during answering time and to analyze the issue under study in ordinary setting. The questionnaire precise enough to meet the objectives of the study research questions. Besides, comments and advice from participants defense on the study great support to frame up the questionnaire and other. The purpose and objectives of the study was explained to the respondents as simply as possible allocating sufficient time so that they swallow up the idea and can come back with spontaneous thoughts. Thus questionnaires duly filled up to avoid unwarranted biasness.

¹ Black, K. (2010) “Business Statistics: Contemporary Decision Making” 6th edition, John Wiley & Sons

Validation of Data

Validity is the degree to which the allotted instruments convincingly measure, explore or describe the phenomenon in hand (Judd, Smith and Kidder, 1991). In this study data were collected by questionnaire survey and interview method was also followed. The combinations of both the methods give the reliable and valid data. In this study, qualitative and quantitative collecting data were triangulated due to 1998:247). Validity refers to trustworthiness which is done through cross checking the data collect from one source to that of others. If themes are established based on converging several sources of data or perspectives from participants, then this process can be claimed as adding to the validity of the study (Creswell 2009, p.191). In this study data were triangulated during survey and interview and latter justified with secondary data.

Data Processing and Analysis

In qualitative study the researcher has the freedom to marshal gathered data to meet the desired objectives of the study (Creswell 2009). Partial data of questionnaire survey was processed using simple statistics. The rest of the data were explained carefully to meet the aim of the study and research question and also attempted to establish relation among the variables. Some important and strong statements were referred in the analysis part to add value to the findings. Endeavor was make firstly to unleash the potential of schools and colleges of ICT on the dependent in educational development and to rationalize its institutionalization; secondly to detect the challenges, prospects and finally to put some light on to overcome the barriers. Computer Program Microsoft Excel was used for data analysis. Data were analyzed according to the objectives of the study. Tables, graphs and statistical analysis were done by Computer Program Microsoft Excel.

RESULTS AND DISCUSSION

Response from the Students

Table 3: Gender of the Respondents

Gender	Principal, Vice Principal, Headmaster, Assistant Headmaster		Lecturer, Assistant Teacher, Senior Teacher	
	Frequency	Percent	Frequency	Percent
Male	69	86.2	42	70.0
Female	11	13.8	18	30.0
Total	80	100.0	60	100.0

Source: Field Survey, 2018

Genders of the Respondents have shown in the above table. From the result it was found that among the Principal, Vice Principal, Headmaster, Assistant Headmaster, 86.2% were male and 13.8% were female. Among the Guardian, 67.5% were male and 32.5% were female. Among the Lecturer, Assistant Teacher, Senior Teacher, 70% were male and 30% were female. The result indicates that the presences of female respondents are few in comparison to male. In case of students, the female students were not interested for giving answers of questions. The presence of Principal, Vice Principal, Headmaster, Assistant Headmaster are also few because in most cases these posts are occupied by the female. In case of guardians, the presence of female were also few because the female guardians were not interested for giving answers of questions. The presence of Lecturer, Assistant Teacher, and Senior Teacher are more in comparison to other respondents because in recent years female are interested for teaching profession. Female thought that the teaching profession is safe for women.

Table 4: Age of the Respondent

Age (Years)	Principal, Vice Principal, Headmaster, Assistant Headmaster		Lecturer, Assistant Teacher, Senior Teacher	
	Frequency	Percent	Frequency	Percent
21-30	-	-	10	16.7
31-40	8	10.0	31	51.7
41-50	28	35.0	12	20.0
51.-60	44	55.0	7	11.7
61-70	-	-	-	-
Total	80	100.0	60	100.0

Source: Field Survey, 2018

Ages of the Respondent have shown in the above table. From the result it was found that Among Principal, Vice Principal, Headmaster, Assistant Headmaster, 10% were age group 31-40 years, 45% were age group 41-50 years and maximum 55.0% were age group 51-60 years. Among the guardians, 20% were age group 21-30 years, 12.5% were age group 31-40 years, 32.5% were age group 41-50 years, 12.5% were age group 51-60 years and 22.5% were age group 61-70 years. It is interesting that the age group of Principal and other and lecture and others were not found above 61 age. At the same time they are getting job above 21 to 30 ages for lecture and others.

Table 5: Class/Educational qualification

Principal, Vice Principal, Headmaster, Assistant Headmaster			Lecturer, Assistant Teacher, Senior Teacher		
Educational Qualification	Frequency	Percent	Educational Qualification	Frequency	Percent
Bachelor	11	13.7	Bachelor	12	20.1
Masters	69	86.3	Masters	48	79.9
Total	80	100.0	-	60	100.0

Source: Field Survey, 2018

Class/ Educational qualifications have shown in the above table. From the result it was found that among the Principal, Vice Principal, Headmaster, Assistant Headmaster. Among the Guardians, 12.5% were Bachelor degree holders 32.5% were Masters Degree holders and 55.0% completed SSC. Among the Lecturer, Assistant Teacher, Senior Teacher, 20.1% were Bachelor degree holders and 79.9% were Masters Degree holders. From the result it is interesting that the rate of achieving higher degree (Master degree) among Principal, Vice Principal, Headmaster, Assistant Headmaster, Guardian, Lecturer, Assistant Teacher, Senior Teachers are more. Because in the modern age all people become higher educated.

Table 6: Experience of the respondents

Experience of the respondents	Lecturer/Assistant Teacher/Teacher		Principal, Vice Principle, Headmaster, Assistant Headmaster	
	Frequency	Percent	Frequency	Percent
1-10 years	31	51.7	-	-
11-20 years	18	30.0	11	13.75
21-30 years	10	16.7	55	68.75
31-40 years	1	1.7	14	17.5
Total	60	100.0	80	100.0

Source: Field Survey, 2018

Experience of the respondents has shown in the above table. From the result it was found that 51.7% Lecturer/ Assistant Teacher/ Teacher had 1-10 years experience, 30.0% Lecturer/Assistant Teacher/Teacher had 11-20 years experience, 16.7% Lecturer/Assistant Teacher/Teacher had 21-30 years experience and 1.7% Lecturer/Assistant Teacher/Teacher had 31-40 years experience. On the other hand 13.75% Principal, Vice Principle, Headmaster, Assistant Headmaster replied that they had 11-20 years of experience, 68.75% Principal, Vice Principle, Headmaster, Assistant Headmaster replied that they had 21-30 years of experience and 17.5% Principal, Vice Principle, Headmaster, Assistant Headmaster replied that they had 31-40 years of experience. From the result it is clear that most of the teachers are experienced.

Table 7: Religion of the Respondents

Religion	Principal, Vice Principal, Headmaster, Assistant Headmaster		Lecturer, Assistant Teacher, Senior Teacher	
	Frequency	Percent	Frequency	Percent
Islam	62	77.5	49	81.7
Hindu	18	22.5	10	16.7
Christian	-	-	1	1.6
Total	80	100.0	60	100.0

Source: Field Survey, 2018

Religions of the Respondents have shown in the above table. From the result it was found that among the Principal, Vice Principal, Headmaster, Assistant Headmaster, 77.5% were Muslim, 22.5% were Hindu and no respondents were Christian. Among the Guardians 100% were Muslim, no respondents were Hindu and Christian. The rate of Muslim respondents in case of Student, Principal, Vice Principal, Headmaster, Assistant Headmaster, Guardian, Lecturer, Assistant Teacher and Senior Teacher. As Bangladesh is mainly a Muslim country. The percentages of Muslim people are more followed by Hindu people followed by Christian people. For this reason Muslim respondents are more in this study.

Table 8: Impacts of ICT on the education of secondary and higher secondary students

Opinion of Principal / Vice-principal / Headmaster /Asst. headmaster	Frequency	Percent
ICT helps to make everything digital	4	5.0
ICT is important for SSC and HSC students	4	5.0
Learning but not being expert	4	5.0
Learning how to operate computer	12	15.0
Makes subject easy, increase knowledge	26	32.5
Students learning positive and negative things	26	32.5
Students can learn attentively	4	5.0
Total	80	100.0

Source: Field Survey, 2018

From the result, it is found that 5.0% respondents replied that ICT helps to make everything digital, 5.0% respondents replied that ICT is important for SSC and HSC students, 5.0% respondents replied that they are learning but not being expert, 32.5% respondents replied that ICT makes subject easy, helps to earn knowledge, 32.5% respondents replied that with the help of ICT, students learn positive and negative things and 5.0% respondents replied that through ICT, students can learn attentively. From this table we can see that the students are learning ICT as a compulsory subject. According the teachers', by learning ICT subject students can operate computer, can do some work by using computer but they are not being expert for doing difficult works.

Table 9: Teachers' opinion on impacts of ICT on the education of secondary and higher secondary level students

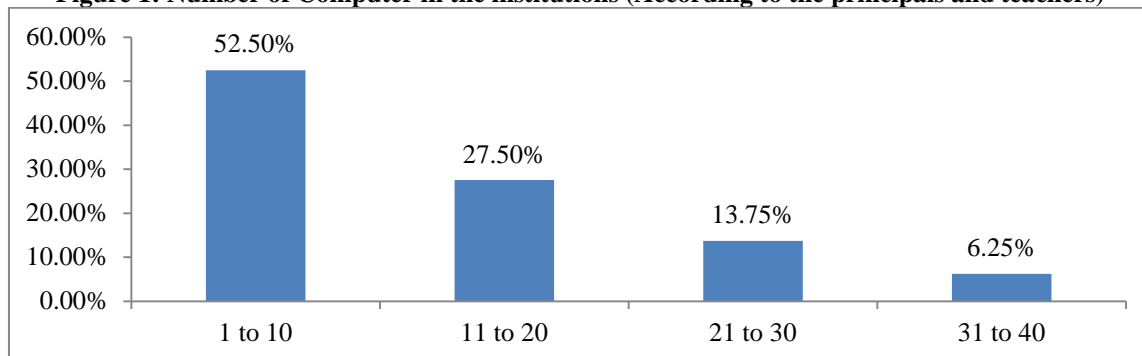
Teachers' opinion	Percent
In using ICT, there are positive and negative impacts of ICT	11.67
By using ICT, all things are updated gradually and able to know easily about globalization	10.0
By using ICT, students knowledge and skills increase, students will be more inspire, attentive and teaching will be more effective and the education system and education quality can change	78.33
Total	100.0

Source: Field Survey, 2018

From the result, it is found that 11.67% respondents replied that there are positive and negative impacts of ICT, 10% respondents replied that by using ICT and 78.33% respondents replied that by using ICT, students knowledge and skills increase, students will be more inspire, attentive and teaching will be more effective and the education system and education quality can change. According to the teachers' opinion, there are important role of ICT on the secondary and higher secondary level students' education. Some teachers said that there are few students who stayed at the last row of classroom, they are not attentive to the class, and they use their smart

phone during class time. Some students use their smart phone during their leisure time and disturbed other students. According to technological determinism theory, there are some technological determinists e.g. hard determinists, soft determinists. Hard determinists would view technology as developing independent from social concerns. They would say that technology creates a set of powerful forces acting to regulate our social activity and its meaning. According to this view of determinism students organize ourselves to meet the needs of technology and the outcome of this organization is beyond students' control or students have the freedom to make a choice regarding the outcome. Soft determinism, as the name suggests, is a more passive view of the way technology interacts with socio-political situations. Soft determinists still subscribe to the fact that technology is the guiding force in students' improvements, but would maintain that students have a chance to make decisions regarding the outcomes of a situation. This is not to say that free will exists, but that the possibility for students to move the risk and see what the outcome is exists.

Figure 1: Number of Computer in the institutions (According to the principals and teachers)



Source: Field Survey, 2018

From the result it is found that 52.5% institutions have 1-10 computers, 27.5% institutions have 11-20 computers, 13.75% institutions have 21-30 computers, and 6.25% institutions have 31-40 computers. It is found that many institutions don't belong to adequate number of computer. From the result it is found that there are 52.50% institutions that have only 1-10 computers, these types of institutions have kept the computer lab only for show. They are not using the lab. Most of the institutions have not available computer lab facilities. In these institutions students are not getting available ICT practical classes. They are not learning practical knowledge regarding ICT. According to Uses and Gratification theory there should have an audience centered approach to understanding mass communication. In this study students can play as audience for understanding ICT and computer can play a mass communicating media.

Table 10: Using ICT by teachers' in Class Rooms for making the topics easy to students

Respondents' opinion	Lecturer, Assistant Teacher, Senior Teacher	
	Frequency	Percent
Yes	33	55
No	27	45
No comment	-	-
Total	60	100.0

Source: Field Survey, 2018

The table shows the use rate of ICT in the class room activities. 47.7% learners had affirmative replies while 51.6% was negative, 0.7% had no comments. Teachers on different level of about 55% confirmed using ICT devices and the rest percentage admitted their failure due to having no digital facility. Once upon a time, the teachers used black board and chalk to teach the students. It took many times to write the class contents in the black board. At present the class contents are completed previously by using Microsoft Power point and the contents are shown in the multimedia projector. It takes little time to show the class content and there are more time and opportunity to explain the class content. According to Uses and Gratification theory is positivistic in its approach, based in the socio-psychological communication tradition, and focuses on communication at the mass media scale. This theory discusses how users deliberately choose media that will satisfy given needs and allow one to enhance knowledge, relaxation, social interactions/companionship, diversion, or escape. It assumes that students are not passive consumers of media. Rather, the student has power over their media consumption and assumes an active role in interpreting and integrating media into their own lives. Unlike other theoretical perspectives, this theory holds that students are responsible for choosing media to meet their desires and needs to achieve gratification. This theory would then imply that the media compete against other information sources

for viewers' gratification. According to this theory, if a teacher use multimedia projector as a tool for communication, it will be effective and the rate of receiving of students will be increase.

Table 11: Use of ICT properly by teachers and students in the institutions in percentage (Principal/Vice-principal/Headmaster/Asst. headmaster opinion)

Percentage of teachers and students ICT use	Frequency	Percent
0-10%	17	21.25
11-20%	26	32.5
21-40%	29	36.25
41-60%	8	10.0
61-80%	0	0.0
81-100%	0	0.0
Total	80	100.0

Source: Field Survey, 2018

The table is made with interviewing 80 Principals, Vice-principals, Headmasters and Asst. headmasters. 17 of them confirmed 0-10% ICT usage, 26 assured 11-20%, 29 said 21-40% and 8 indicated 41-60% digital class room activities. It is clear that ICT based class rooms have not yet been possible throughout the country. Most of the teachers do not use ICT properly in the institutes. Only some young teachers are interested to use ICT because they know how to use ICT. But some old teachers do not know how to use ICT properly. So they are not interested to use ICT in the classroom.

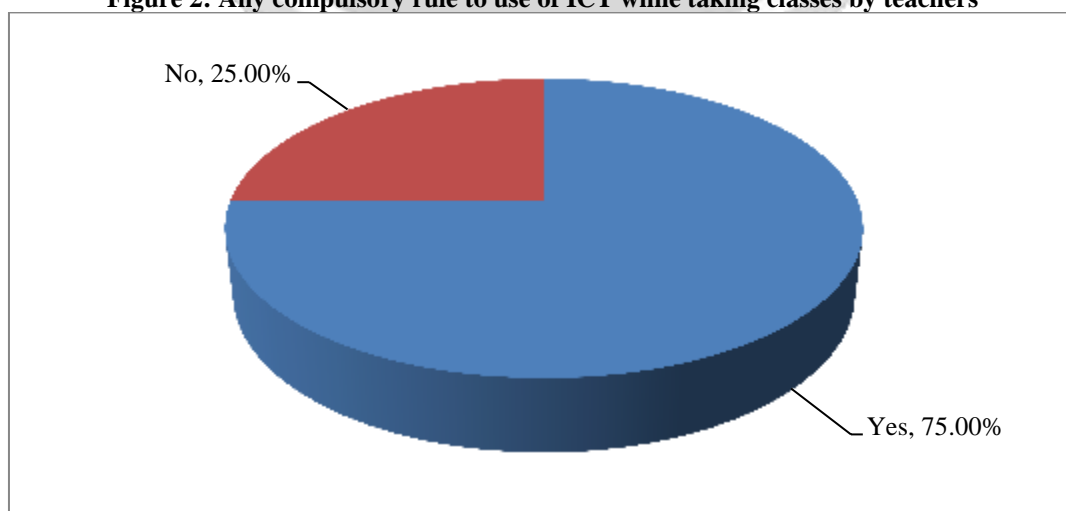
Table 12: Number of trained ICT Teachers (Lecturers/Assistant Teachers/ Senior Teachers opinion)

Number of ICT teachers	Frequency	Percent
Yes	53	88.3
No	7	11.7
Total	60	100.0

Source: Field Survey, 2018

The table is made with interviewing 60 Lecturers, Assistant Teachers and Senior Teachers. 88.3% of them replied that they have required number of trained ICT teachers and 11.7% of them replied that they have no required number of trained ICT teachers. It is a picture of trained resources which advance day by day. All over Bangladesh most of the institutions have ICT trained teachers. Some institutions have not ICT trained teachers. As the teachers can use ICT, they can teach their students ICT uses. After some years all teachers will able to teach their students using ICT.

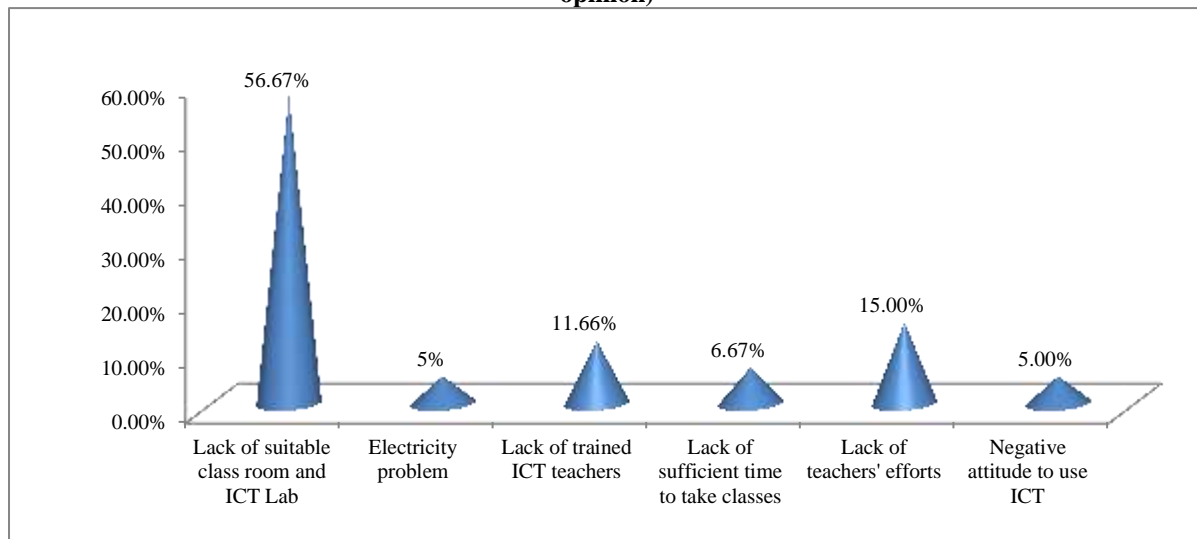
Figure 2: Any compulsory rule to use of ICT while taking classes by teachers



Source: Field Survey, 2018

The result shows that in 75% institutions had compulsory rule to use of ICT while taking classes by teachers and in 25% institutions had no compulsory rule to use of ICT while taking classes by teachers'. It means most of the authority of the schools and colleges in Bangladesh has instinct to use ICT. For lacking facilities some of the institutions authority has not instinct to use ICT. If these institutions get facilities from the government they can make a compulsory rule to use ICT in their institutions.

Figure 3: The barriers of ICT using and learning in the educational institutions of Bangladesh (Teachers' opinion)



Source: Field Survey, 2018

The barriers of ICT using in the institutions has been shown in the above graph. From the result, it is found that 56.67% teacher replied that Classrooms and ICT Lab environment is not suitable to use ICT, 5% teacher replied that there is electricity problem in institution, 11.66% teacher feel that lack of trained ICT teachers is the barrier of ICT using in the institute. 6.67% teacher said that not to get sufficient time to take classes is a problem of ICT using. 15% respondents replied that lack of teachers' efforts is a barrier to use ICT and 5% teacher replied that negative attitude is also a barrier of ICT using. There are many barriers of ICT using and learning in Bangladesh. The main barrier is lack of suitable class rooms and quality ICT labs. Secondly lack of trained ICT teacher is a big problem for students ICT learning and uses. In many schools and colleges other subject teachers take short training on ICT and take ICT classes. But they are not able to teach students properly. They are not able to take practical classes fruitfully.

Table13: ICT has made education easy (all types of respondents' opinion)

Respondents' opinion	Principal, Vice principal, Headmaster, Assistant headmaster		Lecturer, Senior teacher, Assistant teacher	
	Frequency	Percent	Frequency	Percent
Yes	70	87.5	49	81.67
No	10	12.5	11	18.33
Total	80	100.0	60	100.0

Source: Field Survey, 2018

ICT has made education easy shown in the above table. From the result it was found that 87.5% Principal, Vice Principal, Headmaster, Assistant headmaster replied that ICT has made education easy and only 12.5% Principal, Vice Principal, Headmaster, Assistant Headmaster replied that ICT has not made education easy. On the other hand 81.67 % Lecturer, Senior Teacher, Assistant Teacher replied that ICT has made education easy and 18.33% Lecturer, Senior Teacher, Assistant Teacher replied that ICT has not made education easy. According to all types of respondents' opinion it is clear that if teachers and students can use ICT in the institutions, students will get quality education and their learning process and education will easier.

Table 14: Using ICT (digital board, computer, laptop, and internet) in Class Rooms (Students' and teachers' opinion)

opinion	Lecturer, Assistant Teacher, Senior Teacher	
	Frequency	Percent
Yes	57	95.0
No	3	5.0
No comment	-	-
Total	60	100.0

Source: Field Survey, 2018

Using ICT in Class Rooms has shown in the above table. From the result it was found that 95.0% Lecturer, Assistant Teacher, Senior Teacher replied that they use digital board, computer, laptop, and internet and 5.0% Lecturer, Assistant Teacher, Senior Teacher replied that they do not use digital board, computer, laptop, and internet. But according to the teachers' opinion about all teachers use ICT in the class rooms. So it is clear that ICT is not using in the classrooms properly.

Table 15: The Syllabus quality of ICT at secondary and higher secondary level in Bangladesh is not up to date (teachers' opinion)

Teachers' opinion	Frequency	Percent
Strongly agreed	40	66.7
Agreed	10	16.7
Disagreed	7	11.7
Strongly disagreed	3	5.0
Total	60	100.0

Source: Field Survey, 2018

From the result, it is found that 66.7% respondents strongly agreed that the quality of syllabus of ICT is not up to date. Moreover, 16.7% respondents agreed that the quality of syllabus of ICT is not up to date. Besides, 11.7% respondents disagreed that the quality of syllabus of ICT is not up to date and 5.0% respondents were strongly disagreed about this matter. So, it is clear that the standard of the syllabus is not up to mark. The Syllabus quality of ICT at secondary and higher secondary level in Bangladesh should up to date as international standard.

Table 16: Number of ICT Teachers

Number of ICT Teacher	Frequency	Percent
0	4	5.0
1	19	23.8
2	11	13.8
3	30	37.5
4	4	5.0
7	12	15.0
Total	80	100.0

Source: Field Survey, 2018

Numbers of ICT Teachers have shown in the above table. From the result it was found that 5.0% Institutions had no ICT teacher, 23.8% Institutions had 1 ICT teacher, 13.8% Institutions had 2 ICT teacher, 37.5% Institutions had 3 ICT teacher, 5.0% Institutions had 4 ICT teacher and 15.0% Institutions had 7 ICT teacher. Most of the institutions have ICT teachers but very few institutions have no ICT teachers. Most of the institutions have ICT teachers but most of them are not ICT experts. They have completed their Bachelor or Masters degree from other discipline, they are not ICT graduates. They have taken ICT training and teaching ICT. For this reason the students are not learning ICT properly.

Table 17: Teachers' opinion regarding ICT Lab

ICT Lab	Frequency	Percent
Yes	67	83.8
No	13	16.2
Total	80	100.0

Source: Field Survey, 2018

ICT Lab has shown in the above table. From the result it was found that 83.8% Institutions had ICT Lab and 16.2% Institutions had no ICT Lab. From the result it was found that still now some institutions have no ICT Lab. According to the teachers' opinion most of the institutions have ICT Lab. But the infrastructures of the lab are not sufficient. Equipments of the lab like computers, sitting spaces, chair, table and electricity supply are not available.

Table 18: Teachers' opinion regarding number of Computer

Number of Computer	Frequency	Percent
1-10	42	52.5
11-20	22	27.5
21-30	11	13.75
31-40	5	6.25
Total	80	100.0

Source: Field Survey, 2018

Number of Computer has shown in the above table. From the result it was found that 52.5% Institutions had 1-10 computers, 27.5% Institutions had 11-20 computers, 13.75% Institutions had 21-30 computers, and 6.25% Institutions had 31-40 computers. From the result it was found that more than fifty percent institutions have 1-10 Computers. Only 6.25% Institutions had 31-40 computers. It is clear that most of the institutions have insufficient Computer in their lab for this reason the students are learning ICT properly.

Table 19: Teachers' opinion regarding Internet connection in the Institution

Teachers' opinion	Frequency	Percent
Yes	80	100.0
No	00	00
Total	80	100.0

Source: Field Survey, 2018

Internet connection in the Institution has shown in the above table. From the result it was found that all the institutions (100.0%) had Internet connection. The result revealed that all the institutions have internet connection. In case of rural areas the institutions, they use modem or mobile for internet connection. The service of modem or mobile for internet connection is very bad. In case of urban areas the institutions use broadband internet connection whose service is better than modem.

Table 20: Teachers' opinion regarding Electricity connection problem in the Institution

Teachers' opinion	Frequency	Percent
Yes	22	27.5
No	58	72.5
Total	80	100.0

Source: Field Survey, 2018

Electricity connection problem in the Institution has shown in the above table. From the result it was found that 27.5% institutions had electricity connection problem and 72.5% institutions had no electricity connection problem. The result revealed that Bangladesh has improved to produce electricity production and electricity connection. So many institutions have no electricity connection problem. But in rural areas of Bangladesh has electricity connection or continuous electricity supply problem.

Table 21: Any compulsory rule to use of ICT while taking classes by teachers

Teachers' opinion	Frequency	Percent
Yes	60	75.0
No	20	25.0
Total	80	100.0

Source: Field Survey, 2018

Any compulsory rule to use of ICT while taking classes by teachers has shown in the above table. From the result it was found that in 75% institutions had compulsory rule to use of ICT while taking classes by teachers and in 25% institutions had no compulsory rule to use of ICT while taking classes by teachers. In Bangladesh many institutions have compulsory rule to use of ICT to take classes by teachers. Despite having the compulsory rule to use of ICT to take classes by teachers, for many cause teachers don't take classes by using ICT. But still now many institutions have compulsory rule to use of ICT to take classes by teachers. For these reasons students of many institutions can't learn their lessons by digital contents.

Table 22: Teachers' opinion about use of ICT properly of teachers and students in percentage in Institutions

Percentage of ICT use by teachers	Frequency	Percent
0-10%	17	21.25
11-20%	16	20.0
21-40%	39	48.75
41-60%	8	10.0
61-80%	-	-
81-100%	-	-
Total	80	100.0

Source: Field Survey, 2018

Use of ICT properly of teachers in institution shown in percentage in the above table. From the result it was found that out 80, 17 respondents replied that ICT use properly use in their Institution 0-10%. 16 respondents replied that ICT use properly use in their Institution 11-20%, 39 respondents replied that ICT use properly use in their Institution 21-40%, 8 respondents replied that ICT use properly use in their Institution 41-60%. From this table it is clear that in most of the institutions teachers and students can't use ICT properly. So teachers teach students ICT theoretically and students learn ICT theoretically. Students can't learn ICT practically and with clear knowledge.

Table 23: Teachers' opinion regarding duration of ICT Training

Duration of ICT Training	Frequency	Percent
0 day	1	1.7
1-10 days	7	11.6
11-20 days	39	65.1
21-30 days	4	6.7
31-40 days	1	1.7
41-50 days	4	6.7
51 days and above	4	6.7
Total	60	100.0

Source: Field Survey, 2018

Duration of ICT Training has shown in the above table. From the result it was found that 1.7% respondents had 0 days training, 11.6% respondents had 1-10 days ICT Training, 65.1% respondents had 11-20 days ICT Training, 6.7% respondents had 21-30 days ICT Training, 1.7% respondents had 31-40 days ICT Training, 6.7% respondents had 41-50 days ICT Training and 6.7% respondents had 50 days and above ICT Training. From the result it is clear that few teachers are long trained but many teachers have short days training. As many teachers are not well trained, they have little knowledge about ICT and do not able teach students ICT properly.

Table 24: Teachers' opinion regarding Electricity connection problem in institutions

Teachers' opinion	Frequency	Percent
Yes	48	80.0
No	12	20.0
Total	60	100.0

Source: Field Survey, 2018

Electricity connection problem has shown in the above table. From the result it was found that 80.0% respondents replied that they had Electricity connection problem and 20.0% respondents replied that they had no Electricity connection problem. From the result it is evident that most of the institutions have electricity connection problem. Electricity is essential to operate computer. As most of the institutions have problem in electricity so they students are unable to operate computer as well as the students are not learning ICT.

Table 25: Teachers' opinion regarding role of ICT in Education

Respondents' opinion	Lecturer, Assistant Teacher, Senior Teacher		Principal, Vice Principal, Headmaster, Assistant Headmaster	
	Frequency	Percent	Frequency	Percent
Strongly agreed	38	63.3	60	75.0
Agreed	22	36.7	20	25.0
Total	60	100.0	80	100.0

Source: Field Survey, 2018

Role of ICT has shown in the above table. From the result it was found that 63.3% Lecturer, Assistant Teacher, Senior Teacher strongly agreed that ICT has role in education and that 63.3% Lecturer, Assistant Teacher, Senior Teacher agreed that ICT has role in education. No respondents were disagreed in this matter. On the other hand 75.0% Principal, Vice Principal, Headmaster, and Assistant Headmaster strongly agreed that ICT has role in education and 25.0% Principal, Vice Principal, Headmaster, and Assistant Headmaster were agreed that ICT has role in education. From the result it was found that most of the teachers are agreed that ICT has role in Education. Because with the help of ICT education becomes easy, with the help of ICT student can learn many complex things easily.

Table 26: Teachers opinion about Problems to take ICT classes in the institution

Respondents' opinion	Frequency	Percent
Yes	36	60.0
No	24	40.0
Total	60	100.0

Source: Field Survey, 2018

Problems to take ICT classes in the institution have shown in the above table. From the result it was found that 60.0% respondents replied that they had Problems to take ICT classes in the institution and 40.0% respondents replied that they had Problems to take ICT classes in the institution. From the result it is clear that most of the teachers face problem to take ICT classes in the institution. The teachers have definite time to finish a certain class. In some cases the teachers cannot finish the class timely. As for example if a teacher took preparation to conduct the class with the help of multimedia projector and he/she started the class with the help of multimedia projector, by this time the electricity is unavailable due to load shading. It will be difficult for the teacher to complete the class timely.

Table 27: Required Number of computer in the Institutions

Number of Computer	Principal, Vice Principle, Headmaster, Assistant Headmaster		Lecturer/Assistant Teacher/Teacher	
	Frequency	Percent	Frequency	Percent
Yes	11	13.75	8	13.33
No	69	86.25	52	86.67
Total	80	100.0	60	100.0

Source: Field Survey, 2018

Required number of computers in the Institutions has shown in the above table. From the result it was found that 13.75% Principal, Vice Principle, Headmaster, and Assistant Headmaster replied that they had required number of computer and 86.25% Principal, Vice Principle, Headmaster, and Assistant Headmaster replied that they had no required number of computers. 13.33% Lecturer/Assistant Teacher/Teacher replied that they had required number of computer and 86.67% Lecturer/Assistant Teacher/Teacher replied that they had not required number of computer. From the result it is proved that most of the institutions have not adequate number of computers. So the students of these institutions are unable to learn and use ICT properly.

Table 28: Teachers taken number of daily classes by using ICT

Number of ICT class	Frequency	Percent
0	27	45.0
1	19	31.67
2	8	13.33
3	3	5.0
4	2	3.33
5	1	1.67
Total	60	100.0

Source: Field Survey, 2018

Teachers taken number of daily classes by using ICT has shown in the above table. From the result it was found that 45% teachers do not use slides in taking class, 31.67% respondents replied that they take 1 class daily by using ICT, 13.33% respondents replied that they take 2 classes daily by using ICT, 5.0% respondents replied that they take 3 classes daily by using ICT, 3.33% respondents replied that they take 4 classes daily by using ICT and 1.67% respondents replied that they take 5 classes daily by using ICT. From the result it is clear that most of the teachers are not interested to take class with the help of ICT because it takes time to make class contents for multimedia projector or other Medias. Whereas if a teacher conducts class with the help of black board and chalk it will take less time.

Table 29: Uses slides to take classes by teachers

Teachers' opinion	Frequency	Percent
No comment	3	5.0
Yes	21	35
No	36	60
Total	60	100.0

Source: Field Survey, 2018

Uses slides to take classes has shown in the above table. From the result it was found that 35% respondents use slides to take classes, 60% respondents do not use slides to take classes and 5.0% respondents do not give any comment. From the result it is clear that most of the teachers are not interested to take class with the help of power point slides because it takes time to make the power point slides. It is also laborious work. On the other hand some teachers are unable to make power point slides. Whereas if a teacher conducts class with the help of black board and chalk it will take less time.

Table 30: Number of subjects' related slides has made to take classes by teachers

Number of Slides	Frequency	Percent
0	4	6.7
1-10	3	5.0
11-20	41	68.4
21-30	2	3.4
31-40	1	1.7
41-50	2	3.3
51 and above	7	11.7

Number of Slides	Frequency	Percent
0	4	6.7
1-10	3	5.0
11-20	41	68.4
21-30	2	3.4
31-40	1	1.7
41-50	2	3.3
51 and above	7	11.7
Total	60	100.0

Source: Field Survey, 2018

Number of subjects' related slides has made has shown in the above table. From the result it was found that 6.7% respondents do not make any slides to take subject related classes. 5.0% respondents made 1-10 slides to take classes, 68.4% respondents made 11-20 slides to take classes, 3.4% respondents made 21-30 slides to take classes, 1.7% respondents made 31-40 slides to take classes, 3.3% respondents made 41-50 slides to take classes and 11.7% respondents made 51 and above slides to take classes. Many power point slides are needed to complete a syllabus of a subject. As it is time consuming and laborious work so most of the teachers do not make adequate number of power point slides to finish his/her subject syllabus. So teaching with the help of ICT become incomplete.

Table 31: Teachers' opinion regarding the barriers of ICT

The barriers of ICT	Frequency	Percent
Classroom environment is not suitable	12	20.0
Electricity problem	2	3.33
Lack of computer	2	3.33
Lack of well equipped ICT Lab	10	16.66
Lack of ICT teachers	6	10.0
Lack of instrument	1	1.67
Lack of Multimedia Classroom	3	5.0
Lack of sufficient time in class	4	6.67
Lack of teachers' efforts	10	16.67
Lack of trained teachers	3	5.0
Negative attitude	7	11.67
Total	60	100.0

Source: Field Survey, 2018

The barriers of ICT have shown in the above table. From the result it was found that 20.0% respondents replied that Classroom environment is not suitable, 3.33% respondents replied that there is electricity problem in institution, 3.33% respondents replied that lack of computer, 16.66% respondents replied that lack of well equipped ICT Lab, 10.0% respondents replied that lack of ICT teachers, 1.67% respondents replied that lack of instrument, 5.0% respondents replied that lack of Multimedia Classroom, 6.67% respondents replied that lack of sufficient time in class, 16.67% respondents replied that lack of teachers' efforts is the barrier of ICT, 5.0% respondents replied that lack of trained teachers and 11.67% respondents replied that negative attitude is also the barrier of ICT.

Table 32: The Syllabus quality of ICT is not up to date

The Syllabus of ICT	Frequency	Percent
Strongly agreed	40	66.7
Agreed	10	16.7
Disagreed	7	11.7
Strongly disagreed	3	5.0
Total	60	100.0

Source: Field Survey, 2018

The Syllabus quality of ICT is not up to date has shown in the above table. From the result it was found that 66.7% respondents were strongly agreed that the Syllabus quality of ICT is not up to date, 16.7% respondents were agreed with the matter, 11.7% respondents were disagreed that the Syllabus quality of ICT is not realistic and 5.0% respondents were strongly disagreed that the Syllabus quality of ICT is not realistic. From the study it was found that the syllabus of ICT is based on theoretical contents. The syllabus has very few practical contents. For this reason the students are learning the theoretical knowledge but their practical knowledge is very few. Its effects reflect the higher study. As the students know the theoretical knowledge they are not doing well in admission test result or in hither studies.

CONCLUSION

Bangladesh has passed a transitional way to socio economic condition with the intervention of ICT based education which will make a technological base society as called "Digital Bangladesh". At present ICT is very important for gathering information, communication and technological as well connecting with the national and International avenues. In this content, Bangladesh has developed and introduce ICT based education system for all level of secondary and higher secondary since 2012. As a result the education system has transformed more scientific than general education. At the same time knowledge, attitude and practice (KAP) about the socio-economic and socio-cultural change has impact to forces of by the processes undergone in way of life. However, the present study has to be making a review about ICT impact on aforesaid education system as find out as follows:

About one-fourth of the students use computers in the institutions but four-fifth of the students uses computers, mobile phones, internet etc. personally at their houses up to 6 hours.

- Some of the students utilize ICT for education purposes. They use ICT for composing, making slides, to understand subject related topics easily, finding information using internet.
- Most of the students don't utilize ICT for education purposes. They waste their time everyday in playing games as well as for using face book, Viber, Whatsapp, and other internet related sites for enjoying songs, movies etc. According to 40.4% students' opinion, using ICT for a longer period of time hampers their study.
- In many schools and colleges in urban area, ICT is using to take few classes in the classrooms. Some famous schools and colleges use ICT to take more classes. On the other hand in rural area ICT is used to take very few classes in the classrooms.
- For not using ICT properly in institutions and houses the positive impact of ICT is not enough on the education of secondary and higher secondary students.
- The education system and education quality of Bangladesh is changing day by day for the role of ICT. Now students can get pictures, videos and information by using ICT. Teachers are taking classes by ICT for quality learning,
- All schools and colleges are taking steps for ICT labs for quality education and changing education system.
- Now in Bangladesh teachers are being trained in computer, learning to make slides and teaching techniques.
- In many schools and colleges have compulsory rule using ICT while taking classes by teachers.
- Secondary and higher secondary students ICT subject result is not satisfactory because in text book of ICT topics are not explained elaborately. Besides, there is lack of practical learning opportunity.
- Students' learning in most of the Institutions is not properly ensured due to lack of electricity, teachers' effort, well furnished ICT lab, etc.

RECOMMENDATIONS

The recommendations of the study are as follows:

- i) Government should ensure connection and uninterrupted electricity supply in all secondary and higher secondary educational institutions during class times.
- ii) Institutions should appoint adequate number of skilled and trained ICT teachers and technicians.
- iii) Text books should be well explained and practical oriented.
- iv) All institutions should provide well equipped ICT lab and infrastructure as well job opportunity.
- v) The government should launch an educational website from where students will get information, slides and necessary solution to the problems.

- vi) The government can open radio/television educational channels where education, information and research programs will be shown for students and teachers.
- vii) Teachers should take more classes by using ICT, Institution authority should ensure this.
- viii) Students should not be given android phone before their passing of HSC.
- ix) Guardians should observe and monitor their children at the time of their using ICT.

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