Government of the People's Republic of Bangladesh

Ministry of Education

Secondary and Higher Education Division

# USE OF ICT DEVICES AND ITS IMPACT ON TEACHING - LEARNING AT SECONDARY EDUCATION

**Bangladesh Bureau of Educational Information and Statistics (BANBEIS)**

1 Zahir Raihan Road (Palashi-Nilkhet), Dhaka-1205

**Government of the People's Republic of Bangladesh**

**Ministry of Education**

**Secondary and Higher Education Division**

**Bangladesh Bureau of Educational Information & Statistics (BANBEIS)**

# Final Report

# On

# Use of ICT devices and its impact on teaching learning at secondary education

**Submitted To**

**Habibur Rahman**

Director General

BANBEIS

1 Zahir Raihan Road (Palashi-Nilkhet)

Dhaka-1205

# Table of Contents

**Annextures:**

# List of Figures

# List of Tables

## *Abbreviations*

| | | |
|---|---|---|
| BANBEIS | : | Bangladesh Bureau of Educational Information & Statistics |
| CD | : | Compact Disc |
| DEO | : | District Education Officer |
| DSHE | : | Directorate of Secondary and Higher Education |
| DVD | : | Digital Video Disc |
| FGD | : | Focus Group Discussion |
| GOB | : | Government of Bangladesh |
| HSC | : | Higher Secondary School Certificate |
| HSE | : | Higher Secondary Education |
| ICT | : | Information and Communication Technology |
| IDI | : | In-depth Interview |
| IOL | : | International Labor Organization |
| JDC | : | Junior Dakhil Certificate |
| JSC | : | Junior School Certificate |
| KII | : | Key informant interviews |
| LMS | : | Learning Management Systems |
| MMC | : | Multimedia Classroom |
| MOE | : | Ministry of Education |
| NAEM | : | National Academy for Educational Management |
| NCTB | : | National Curriculum and Textbook Board |
| RFP | : | Request for Proposal |
| SDGs | : | Sustainable Development Goals |
| SMC | : | School Management Committee |
| SSC | : | Secondary School Certificate |
| SSC | : | Secondary School Certificate |
| TOR | : | Terms of Reference |
| UGC | : | University Grant Commission |
| UN | : | United Nations |
| UNESCO | : | United National Educational Scientific and Culture Organization |
| UNICEF | : | United National International Children's Emergency Fund |
| UPS | : | Uninterruptible Power Supply |
| USEO | : | Upazila Secondary Education Officer |

## *Executive Summary*

The necessity of expansion of information and communication technology (ICT) education is felt tremendously as the demand of education has seen a steady rise over time. ICT education in secondary level is essential for escalation of ICT education in secondary and higher secondary level.The research wing of BANBEIS has initiated the research titled "Use of ICT devices and its impact on teaching learning at secondary education". The research is conducted by the consultancy firm Green Century Ltd. The aim of the research is to look at teaching-learning challenges, including investigation work and assessment in education at the secondary level. The study will explore what kind of ICT device has been used for secondary education and the effectiveness of teaching and learning using ICT devices, the study will also to unfold challenges and identify a way forward of using ICT devices in science teaching-learning at the secondary level and to furnish the way out to overcome these challenges.

The current study follows a mixed-method approach, where both qualitative and quantitative methods are adopted and data collected from primary and secondary sources. In the study, descriptive and textual analyses are carried out to explore two specific issues- one is to review the current ICT education and its impact condition, and the other is to find ways to overcome the challenges.The findings are combined with the qualitative results from the KIIs, Group Consultation, and Secondary document analyses to formulate firm conclusions about the challenges in the ICT education and ways to overcome them.

Major Findings

1. 100% of the secondary schools from Dhaka, Chattogram, Rajshahi, Sylhet and Mymensingh have laptop devices where there is a lack of having laptop devices in madrasah institute except Khulna.

2. Despite this, approximately 92% of students attending schools reported that their educational institute makes use of ICT devices in the classroom, whereas 100% of students attending madrasas from Dhaka, Rajshahi, and Sylhet reported that laptops were used in the classroom.

3. Mobile smart phone devices are new form of ICT devices almost everywhere in both secondary schools (74%) and madrasahs (75%). The findings also confirmed by the officials (95%). Therefore, the government, policy makers,

or high-stake decision-makers may take the initiative to launch mobile learning (M-Learning) platform rather of the more conventional form of online education (E-Learning).

4. Regarding the effectiveness of the use of ICT, while 82.9% students from school said that ICT device used in their classroom where, around 56% respondent from madrasah agreed with this question. Interestingly, general science subject (68%) was given taught in the classroom using ICT device followed by the ICT subjects (61%). Surprisingly, physics (33%) was rarely taught by using ICT device while most vulnerable subject is religion (32%). One possible explanation is, religious teachers are much trained in the ICT program.

5. However, on the whole, 96% of students from schools believe that they are benefitted by using ICT device at the institution, and 78% of students believe that it is very important. In contrast, 86% of students from madrasah believe the same thing, and 76% of them take into account as very important. Therefore, the use of ICT in secondary schools is successful and contributes to improved teaching method.

6. Qualification (85%) and positive attitude towards ICT and innovation (80%) are the most important factor of selecting a teacher to send them for ICT training and report showed that 75% of the teachers are ICT trained and remaining 25% have no ICT training. Based on the age and experience the other two factors can be minimizing. Youngs should give more priority as they have the potential to explore emerging knowledge.

7. ICT enhance the student's learning capability. Overall, 55% students said there were enough improvement of teaching method based on the ICT equipped classes and 40% of the students think that there is absolutely student-friendly student learning.

8. Majority 96% of the teachers from schools think that their students are motivated and attentive for managing the classrooms through ICT devices, and 83% of the madrasah teachers are think so.

Major Challenges

The following are some of the most significant issues that the teacher faces:

1. Load shedding is a common problem in the Rajshahi division (100%) followed by Chattogram and Barisal (93%).

2. Compared to other division Rajshahi has Lack of adequate multimedia classrooms in both schools (80%) and madrasahs (70%). Same situations are in Khulna's (87%) and Barisal's (80%) schools. Compared to institute, Barisal's school have been suffering inadequate laptops and projectors (93%).

3. While only 13% students from Dhaka division think that they have no internet connection to the computer, surprisingly, madrasah students from Dhaka and Rajshahi division have been suffering lack of supplied quality laptops, projectors and modems (0%) and lack of supplied quality laptops, projectors and modems (0%).

4. Evidence from the officials reveals that, due to insufficient (70%) multimedia equipment in the classroom, somehow trained teachers are not willing to conduct ICT-based teaching.

5. Overall, it is found that, there is inadequate infrastructure of ICT (85%), lack of adequate resources (75%), lack of internet connection in school (80%), negative attitude of teachers towards new technology (40%), and there is no enough arrangement to solve various problems of ICT devices (80%).

Recommendations

Based on the results described in the previous chapter and above discussion, this study has some specific recommendation which are followings:

→ **Training of teachers on ICT** (i.e., digital literacy, advance PowerPoint content creating training, digital content, virtual learning): Training in information and communication technology should be required of all secondary school instructors, including madrasah teachers. More specifically, this study recommends to provide the young teachers with greater interest to ICT. Some of the teachers who teach standard subjects like Bengali and religion should have training in the use of information and communications technology (ICT) in the classroom so that they can make their lessons more interacting and informative for their students, particularly students from impoverished backgrounds, who may be less likely to attend school otherwise.

→ **Student's Training on ICT** (i.e., digital literacy, virtual learning): The use of information and communications technology (ICT) technologies should be taught to students so that education may become more interesting, motivating, and inventive. They are required to get an understanding of the most significant emerging technologies as well as the expanding movement toward the use of ICT into educational settings. This is the best period to learn how and where to digitally evaluate learners' knowledge and comprehension on a real-time basis. Importantly, students should get a fresh viewpoint on ICT tools, discover fresh methods and best practices for integrating ICT into learning, and engage in the exchange of best practices and the sharing of learning experiences with others.

→ **Developing learning management systems (LMS):** The Learning Management System, sometimes known as LMS, is becoming an increasingly common method used throughout the teaching and learning process. Schools and colleges may find answers to their challenges via the use of learning and communication technologies. LMS is able to manage activities related to teaching and learning regardless of the constraints of time or location. The Learning Management System (LMS) offers an automated system for the delivery of course material and the monitoring of the learner program. Students are able to see multimedia lectures, chat with their lecturers and one other in teaching forums, download course material, participate in online quizzes, and submit their homework and assignments via the use of a LMS. By developing LMS, education systems will be able to decrease the disparity that exists between the facilities of urban and rural institutions.

→ **Focus on blended learning:** Physical or virtual, online, or digital learning are all examples of blended learning, which refers to the mixing of these multiple types of delivery medium or instructional techniques. While the University Grant Commission (UGC) has produced a policy for blended learning in higher education, which is a mix of online and physical education techniques, there is a deficiency or hole in the implementation of a policy for blended learning in secondary education systems. Students and teachers are able to interact on both a local and a global degree as a result of this method. In addition to this, the students will save money by using this technique. By the way, in order to properly train and strengthen educators like

instructors and teachers, it will first be necessary to comprehend the various competence levels.

→ **Blogs and social networks:** In today's schools, particularly those at the university level, blogs are used as a kind of technological assistance in the teaching and learning processes. Students are prompted to engage in reflective writing practices through the usage of blogs as part of their education in information and communication technologies (ICT). Learners were forced to take accountability for and exercise control over their own individual learning experiences when they participated in forms of the ICT classes that included blog components. The important consequences are that people are encouraged to develop their computer abilities via the use of blogging and Blogs make it possible for us to grow in self-assurance by enabling us to share our expertise with others from all around the globe.

→ **Ensuring Power (Electricity):** Power supply is a far more important factor in determining the success of any inventive initiative. It is practically proof that, power supply being one of the most critical hurdles in the ICT-based education systems, given the outcomes of this research that were presented in the chapter before this one. Conducting virtual classes online requires reliance on technology and the possession of the appropriate digital tools, both of which need consistent and high-quality power in order to function properly.

→ **Self-awareness and effective utilization of ICT devices:** Students, instructors, and administrators all need to practice self-awareness about their use of information and communications technology (ICT) and be maintenance with the devices. Technology that has been installed need continual maintenance and support in order to stay working for an extended period of time. As a result of the increased presence of technology in the educational environment, and schools have been required to devise systems to support it, as well as to establish support positions and locate individuals to fill them.

# Chapter 1. Introduction and Objectives of the Assignments

## *1.1. Background of the Assignment*

Bangladesh has tremendous opportunities of economic development by transforming its huge population into skilled human resources. The Government of Bangladesh has emphasized promoting ICT education to enhance human capability and fulfill the demand of ICT education. The policy actors in Bangladesh have been encouraging ICT use since the beginning of this millennium. Several projects have been designed and implemented to support the meet emergencies, particularly during the school closure due to COVID-19 pandemic. Teachers and learners worked hard to use innovative approaches for learning continuity through distance learning mode. ICT has played a critical role in such situations. There is diversity among the streams, for example, science education has faced increased challenges as there are issues of lab-based practical classes and demonstrations. Although many teachers have volunteered as ICT ambassadors, many of them face challenge using interactive distance learning. A significant number of teachers remain out of teaching due to non-participation in ICT based teaching and learning. However, alternative approaches like written assignments tried to fulfill partial learning loss during the school closure as the pandemic is yet to end and schools are still operating with limited capacity, increased attention is required to use the ICT-based teaching challenges and identify a way to forward to maximize use of ICT for teaching and learning and in assessment to overcome the situation. BANBISE Build integrated education information & statistics and developing human resource through ICT initiatives and ensuring information and information-based planning in national development. As part of the research initiatives, BANBISE is conducting research on **Use of ICT devices and its impact on teaching learning at secondary education**.

## *1.2. Reviews of relevant documents*

Information and Communication Technology, popularly known as ICT, has become a useful tool in promoting quality of education worldwide. It has been introduced in education with a belief that it can turn teaching learning into an enjoyable event to the learners. Transformation from traditional teacher- centric classroom to learner-centric classroom can also be possible using ICTs innovatively at anytime from anywhere. In recent years, aligned with the current trend, Bangladesh also has considered ICT seriously for educational

enhancement. ICT has got importance in policies and curriculum. The government, NGOs and development-partners are playing a significant role in introducing ICT in education. National ICT policy of Bangladesh, framed in 2009, perceived ICT as means of holistic development of the nation. The policy intended to bring necessary reforms in curriculum, pedagogy and teachers' capacity building where ICT would be an effective tool. This includes provision of ICT literacy to the teachers and learners of primary, secondary, and tertiary levels. ICT in education was further emphasized in National Education Policy, 2010. According to the policy, the government intends "to extend the use of information and communication technology (ICT) instrumental in education process at every level". The policy reminded the curriculum and as a signatory to the sustainable development goals, Bangladesh is determined to ensure quality education for all. Therefore, introducing innovative ICT solutions attempts to replace conventional education system with technology integrated instruction even in the remotest area where underprivileged learners have less access to quality education. This way, it also demolishes the digital divide between rural and urban areas. Further, with a view to ensuring 21st century education, the material developers to accommodate ICT in the teaching learning process which has resulted in inclusion of ICT courses in the curriculum of different education levels and teacher training programmes. These recent changes that schools have adopted have taken place within the complex educational contexts through introducing ICT with proper adjustments. Education as part of a social system is inextricably related to a number of social factors such as interpersonal interaction and mutual trust among students and teachers (Palinsar, 2005). Though international education policies have been historically formed by wealthy nations and agencies led by Western theoretical paradigms (Williams, 2015), many international organizations such as the United Nations (UN) and its agencies such as ILO, UNESCO and UNICEF also have taken initiatives to integrate local education systems within the broader perspective of globalization. As a result, donor countries have been seen to engage themselves in collaborating with developing countries to formulate education policies with global perspectives in mind (Williams, 2015). However, in developing countries, this collaboration takes place more with government officials who often lack a deep understanding of the educational needs of their country (Williams, 2015). In developing countries such as Bangladesh, departmental research project can be assisted for understanding the personnel in education systems.

## *1.3. Objective of the Assignment*

- To explore what kind of ICT device has been used for secondary education;
- To explore the effectiveness of teaching using ICT devices;
- To examine the effectiveness of students learning using these devices;
- To explore how formative and summative assessments have been carried forward and their effectiveness;
- To unfold challenges and identify a way forward of using ICT devices in teaching-learning at the secondary level;
- To furnish the way out to overcome these challenges.

The aim of the research is to look at teaching-learning challenges, including investigation work and assessment in education at the secondary level. The study will explore what kind of ICT device has been used for secondary education and the effectiveness of teaching and learning using ICT devices, the study will also to unfold challenges and identify a way forward of using ICT devices in science teaching-learning at the secondary level and to furnish the way out to overcome these challenges.

# Chapter 2. Methodology of the Assignments

## *2.1. Methodology*

The approach for the assignment is very specific in achieving the objectives, as expected and specified by the RFP. Consultants, with their long experience of working with the Government organizations, understand the seriousness and specificity of the output" closest to the objectives of the study. Therefore, the study has been strictly followed with the objectives of study following the Specific, Measurable, Attainable, Realistic and Timely indicators.

## *2.2. Research design (more specifically for field work)*

The strategies for applying the approaches of the study have been included the following several specific steps for accomplishing the assignment.

The method of the research is quantitative and qualitative in nature. Therefore, ideally generate both a quantitative data and qualitative information has been used in this study. During the mobilization & design phase ', the research team decided what is feasible, based on how accessible and reliable different inputs are and how they are used. The consultant also adopted Participatory Assessment for the present research.

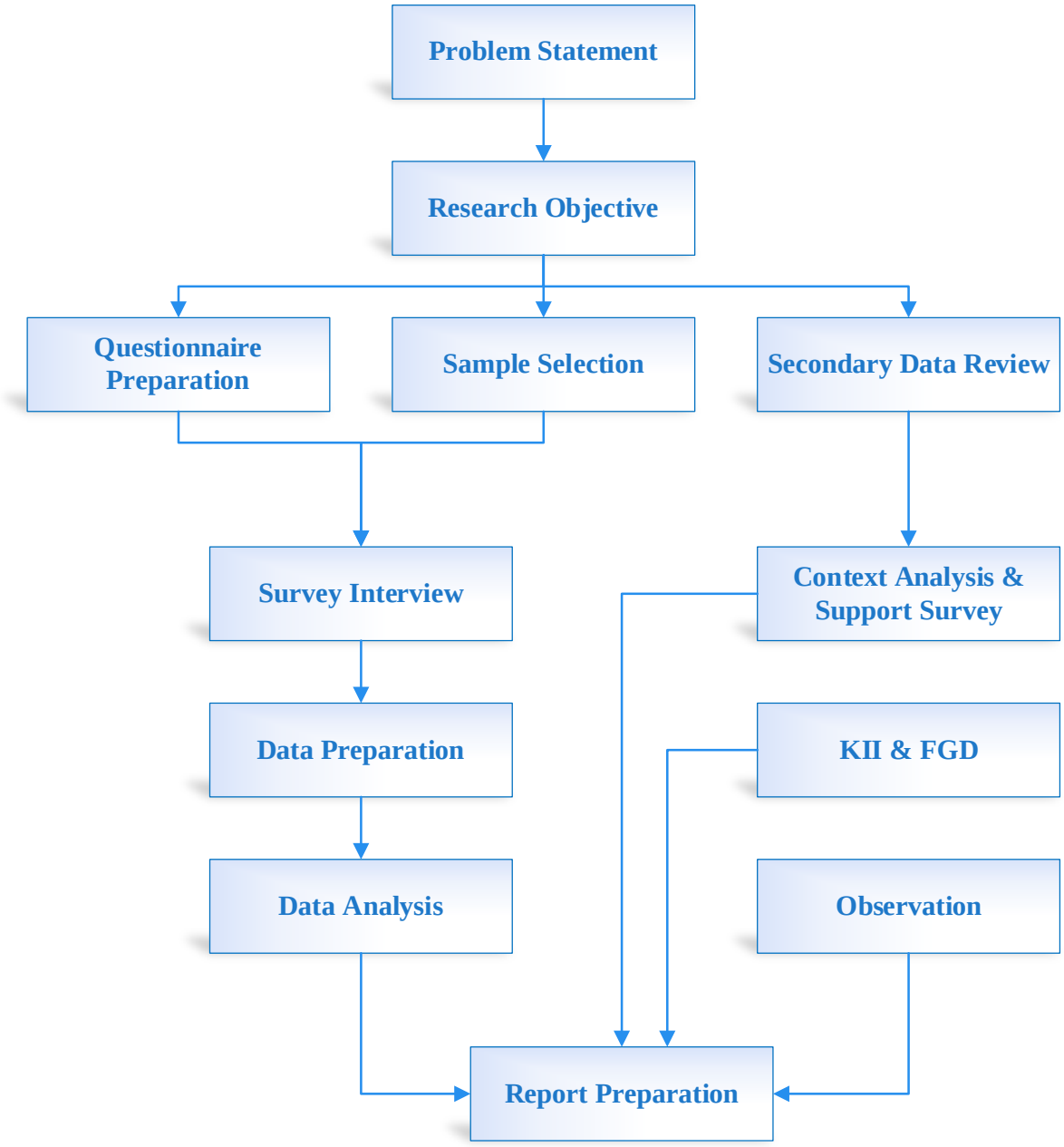



Figure 2.1: Research design (more specifically for field work)

## *2.3. Approach of the Methodology*

The methodology of the research has consisted of both primary and secondary data to conduct the qualitative and quantitative analysis of the data. To capture the real scenario of the selected places, the primary data have been collected and some secondary data/information has also been collected. The qualitative technique included Key Informants Interview, Focus Group Discussion, and classroom observations using a semi-structured and

checklist. On the other hand, quantitative data/information were collected though face to face interview administered questionnaires from the relevant stakeholders.

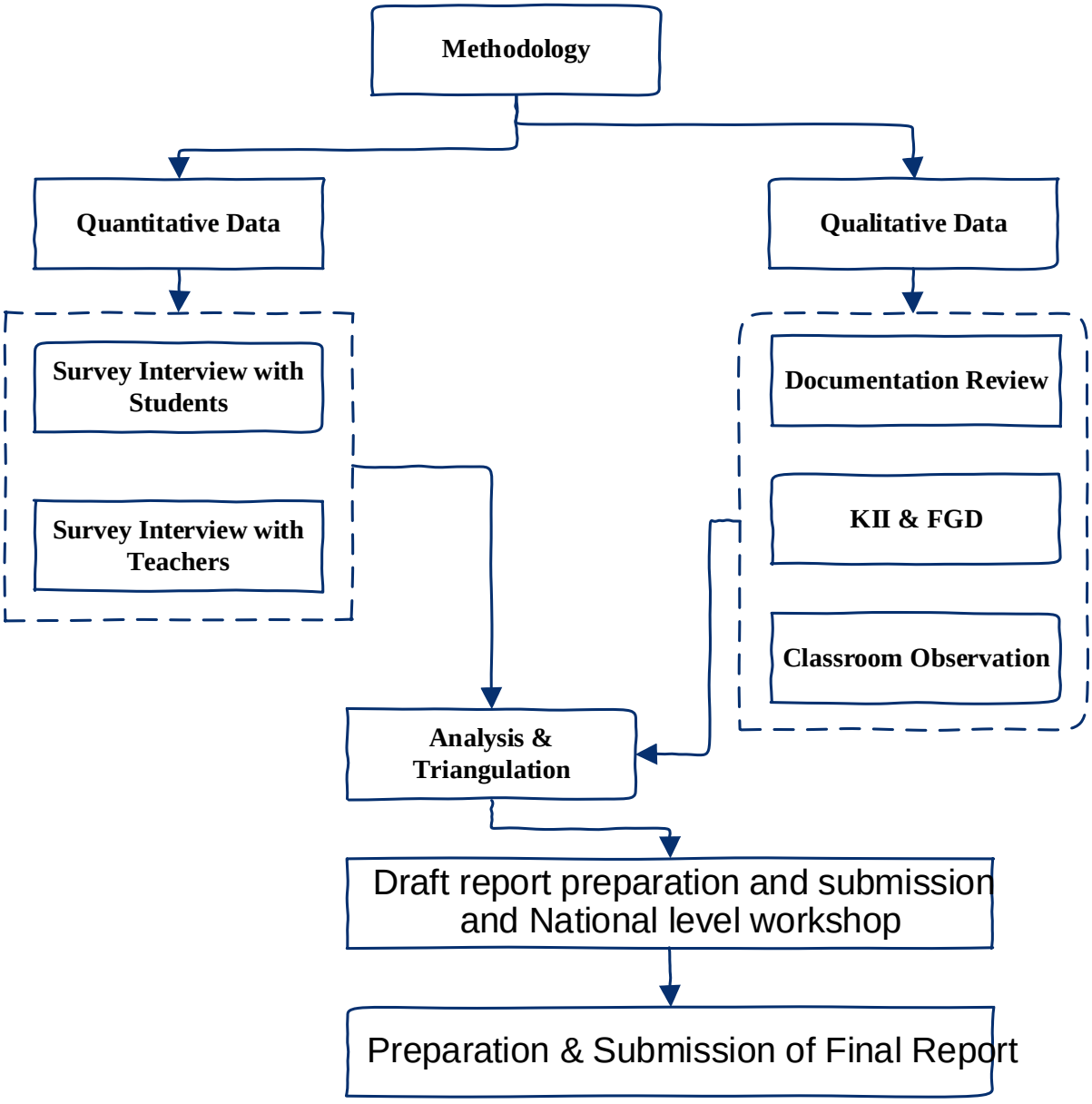



Figure 2.2 Methodology of the Assignment

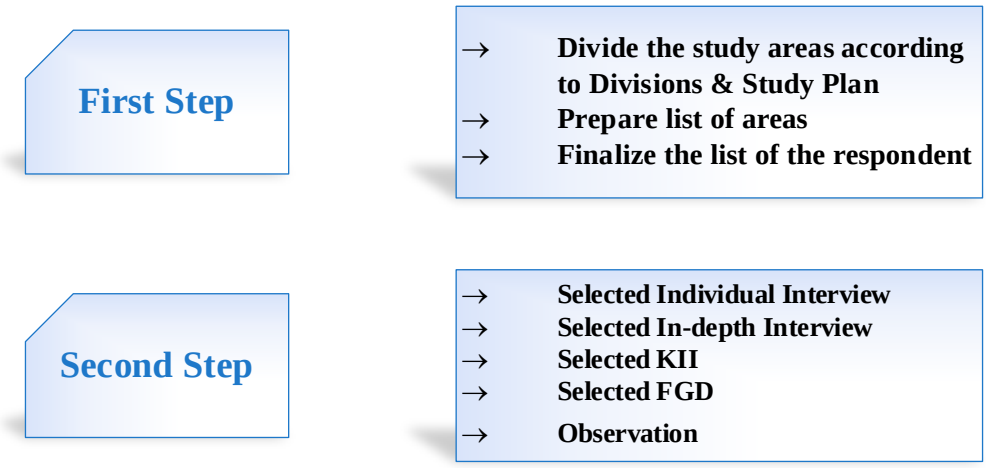



Figure 2.3 Respondents Selection Procedures

The main target audiences are

- Students
- Teachers
- Local education administration
- Policy makers and Experts

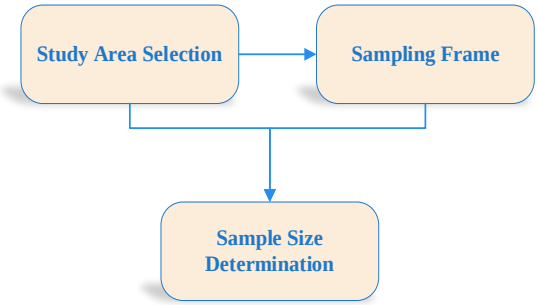



**Figure 2.4 Sampling Designing**

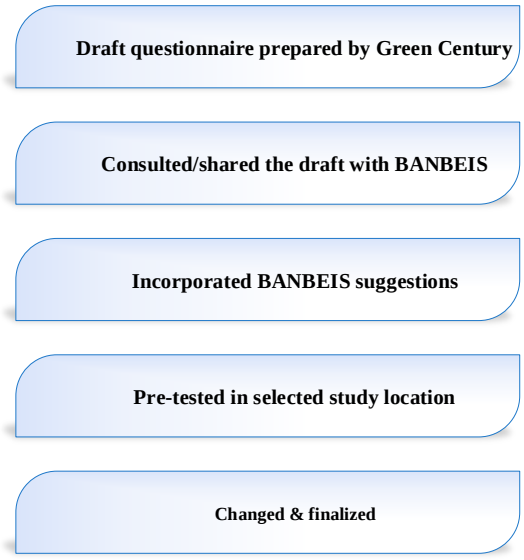



**Figure 2.5 Steps to Design Study Tools**

## *2.4. Quantitative Methods*

### *2.4.1. Sample Size Determination*

In order to design the research at first, we had to select the research area. Then we define the sampling frame and determine the exact sample size from the total population of the program area. These sections are discussed below-

### *2.4.2. Research Area Selection*

All selected secondary level schools and madrasahs were taken for the survey under the study. After that randomly selected students of the selected institutes were taken for the survey. Besides, most of the selected students in the selected institutes have been visited & interviewed with different stakeholders.

### *2.4.3. Sampling Frame*

Consultants typically set a sample size to optimally estimate a single population parameter. This constructs a 95% confidence interval with a Margin of Error of about ±5% (for large populations).

To calculate sample sizes for different population sizes, confidence levels, or margins of error are needed. The formula is given below as follows: **(Krejcie & Morgan 1970 "Determining Sample Size for Research Activities)**

$$n = \frac{Z^2 P(1-P)N}{\{(N-1)ME^2\} + \chi^2 P(1-p)} \times d$$

n = sample size

N=Population size (here-100,00,000 Students is assumed as it is unknown )

P = Population proportion (here 0.5)

Z = Chi – square for specified confidence interval at 1 degrees of freedom = 1.96

Q = 1 - P

ME = Desired margin of error (here, near to 5.0%)

d = Design effect here (d =3) as study area is large

Now therefore, using this formula the sample size *(n)* for beneficiary respondents has been calculated as follows:

$$n = \frac{\{(1.96^2) \times (0.5 \times 0.5) \times 10000{,}000\ \}}{\{(10000{,}000\ -1) \times (0.05)^2\} + \{(1.96^2) \times (0.5 \times 0.5)\}}\ \times\ 3$$

$$= 1155$$

The sample size was 1155 students from secondary level educational institutes (General and Madrasa) for the study. However, to avoid some error and round figure a total of 1200 graduates were taken for individual interview.

### *2.4.4. Respondents Selection Procedures*

- Secondary level institutes (General and Madrasah) were taken randomly under the study;
- At the 1st stage, 2 (two) sample districts were selected from each division of the country;
- At the 2nd stage, 1(one) sample Upazila were selected randomly from each of the selected district;
- At the 3rd stage, 10 sample schools and 5 Madrasahs ) were taken from each of the selected Upazila; And
- Finally 5 sample students have been surveyed from each selected institute

### *2.4.5. Sample Distributions*

Table 2.1 Sample distributions for quantitative survey

| **Division** | **No of selected District** | **No of selected Upazila from each district** | **No of sample Schools in each Upazila** | **No of sample Madrasah (5) in each Upazila** | **No of secondary level Institutes (10 schools & 5Madrash ) from each upazila** | **Sample size (Minimum 5 sample taken)** |
|---|---|---|---|---|---|---|
| Dhaka Division | 2 | 2x1=2 | 10 | 5 | 2x15=30 | 30x5 |
| **Sub-total** | | | | | | **150** |
| Chattogram Division | 2 | 2x1=2 | 10 | 5 | 2x15=30 | 30x5 |
| **Sub-total** | | | | | | **150** |
| Sylhet Division | 2 | 2x1=2 | 10 | 5 | 2x15=30 | 30x5 |
| **Subtotal** | | | | | | **150** |
| Mymensingh Division | 2 | 2x1=2 | 10 | 5 | 2x15=30 | 30x5 |
| **Subtotal** | | | | | | **150** |

| | | | | | | |
|---|---|---|---|---|---|---|
| Khulna Division | 2 | 2x1=2 | 10 | 5 | 2x15=30 | 30x5 |
| **Sub-total** | | | | | | **150** |
| Rangpur Division | 2 | 2x1=2 | 10 | 5 | 2x15=30 | 30x5 |
| **Sub-total** | | | | | | **150** |
| Rajshahi Division | 2 | 2x1=2 | 10 | 5 | 2x15=30 | 30x5 |
| **Sub-total** | | | | | | **150** |
| Barisal Division | 2 | 2x1=2 | 10 | 5 | 2x15=30 | 30x5 |
| **Subtotal** | | | | | | **150** |
| **Grand Total** | **16 districts** | **16 Upazilas** | | | **240 Institutes** | **1200 students School (Actual: Students=842 Madrasah=358)** |

**Note:** Sample were taken randomly, proportionately and also purposively and above selected no. of Upazila and institutes (Govt. and Non-govt High school and Madrasah) were taken from different natural geographical locations like plan land, Haor, Barind, Hilly, and Coastal zone covering all over the country.

Minimum 5 students were taken from per institute covering male and female from class vi to x in the sampling frame and size. Therefore, a total of 240 secondary institutions (Schools and Madrasahs) were taken in the study. Thus, from each of the selected 16 Upazilas 15 secondary institutions (Schools-10 and Madrasah-5) have been surveyed. From each institute, 5 sample students have been surveyed from class 6 to 10 covering male and female.

## *2.5. Qualitative Method*

Among various participatory approaches', the most pertinent for the present research is "Stakeholders Analysis" and "Participatory Assessment "and these are the most appropriate techniques. In this analysis the most appropriate methods used are as follows:

a) Focus Group Discussion (FGD)
b) Key Informant Interviews (KII)
c) In-depth Interview
d) Observation/Field Visit

### *2.5.1. Data Collection Methods and respondents (Quantitative & Qualitative)*

Table 2.2 List of methodological tools and their corresponding participant

| Methodological Tools | Type of Participant | Number of Participant |
|---|---|---|
| Desk Review | Existing curricula, curricula of the others country, Relevant policies, published research reports; Other customary laws of Bangladesh and Relevant survey Reports, Journal, Publication, newspapers, etc. | Available Documents |
| Survey | Students of selected Institutes | 1200 students from selected Secondary schools and Madrasahs |
| **Sub-total** | | **1200** |
| Survey | School Head Teacher /Assistant Teacher | 132 Persons |
| | Madrasah Super/ Head Teacher /Assistant Teacher | 35 Persons |
| **Sub-total** | | **167 persons** |
| Key Informant Interview (KII's) | District Education officer | 5 Persons |
| | Upazila Secondary Education Officer | 12 Persons |
| | Education Sector Expert | 3 Academician |
| **Sub-total** | | **20 persons** |
| FGD's | Representatives of teachers from selected institutes | · At least 8 FGDs with each institute. |
| | | · 96 (12*8) persons of Different category. |
| Classroom Observation | Selected Schools and, Madrasahs facilities for ICT education | · 120 (School = 90, Madrasah = 30) |
| Workshop (25-30 Persons to be participated) | Division and Central Level Professional engineers, relevant expert and BANBEIS authority | · 2 (1 in Inception and another is Draft sharing) |

## *2.6. Detailed Method of Data Collection*

Some Important methods of data collection were adopted for the study to collect necessary information from the project area and they are-

### *2.6.1. Review of Secondary Documents*

The secondary documents related with the study have been collected and reviewed. The following secondary documents were reviewed:

- ü National ICT Policy 2018
- ü ICT Master Plan 2012-2021 report
- ü Bangladesh National Education Policy 2010
- ü Relevant Education policy and strategy;
- ü Eight five years plan 2021-2025

- Review existing basic ICT curriculum of secondary and Madrasah education;
- 2nd perspective plan 2021-2030
- United Nations Sustainable Development Goals (SDGs)
- Other Relevant survey Reports, Journal, Publication, newspapers, etc.

### *2.6.2. Individual Interview with students*


Individual interview is a type of interview with an individual that aims to collect detailed information. The purpose of individual interviews is to understand the underlying motivations, beliefs, attitudes, and feelings of respondents on the particular subject. Interviews have been conducted with students of selected institutes from class vi to class x. A total of 1200 students were interviewed using structure questionnaire /checklist.

### *2.6.3. In-depth Interview*


The purpose of in-depth interviews is to understand the underlying motivations, beliefs, attitudes, and feelings of respondents on the particular subject. IDIs were conducted with Head Teacher, Assistant Teacher including ICT Ambassador. A total of 167 IDI will be conducted using semi structure questionnaire.

### *2.6.4. Key Informant Interview*


KII were conducted with relevant representatives of official of Directorates of Technical and Madrasah education, District Education Officer, Upazila Secondary Education Officer, etc. A total of 20 KII will be conducted using semi structure questionnaire.

### *2.6.5. Focus Group Discussion (FGD)*


Focus group discussion is frequently used as a qualitative approach to gain an in-depth understanding of social issues. As a part of qualitative analysis, 8 Focus Group Discussion (FGD) were conducted with student and other relevant stakeholders in

homogeneous category from each sampled Division. The participants for each FGD were 10-12 individuals. One FGD was conducted in each division and each homogeneous category. Therefore, the total participants for 8 FGDs were 96 persons (8x12).

### *2.6.6. Observation*



Observation and Physical field observation were done by consultant to know the real changes and impact in the beneficiary level.

## *2.7. Study Tools Design*

The draft questionnaire was prepared by our team based on the objectives, scope of work, needs and indicators for the study as indicated in the TOR, proposed approach and methodologies. Besides, consultations/discussions were held with BANBEIS authority to cover all the required indicators. The study questionnaire included appropriate questions to

collect necessary information from different levels and types to reflect the indicators relevant to the objectives of the study as well as consistent with the scope of work.

## *2.8. Training for the field enumerators*

There was training session in Dhaka for the field enumerators prior to the commencement of the survey. There was detailed orientation on the topic, objective, various aspects of interview skills, using topic guide for FGD, KII, IDI and rapport building with respondents. All the enumerators were attended as participants. Consultants and representatives from Client (BANBEIS) were present as observer/resource person.

In this section timeline of the field survey, Training of the Enumerators and Supervisors/Quality Controllers, Pre-testing of Data Collection Tools, Field Data Collection and Field Work Coordination, and Data Quality Control Mechanism were discussed.

### *2.8.1. Field Data Collection and Field Work Coordination*

The trained study enumerators and supervisors were assigned to specific study location. The study supervisors were placed for supervising the data collection and they were also responsible for monitoring, data checking and field verification of collected data.

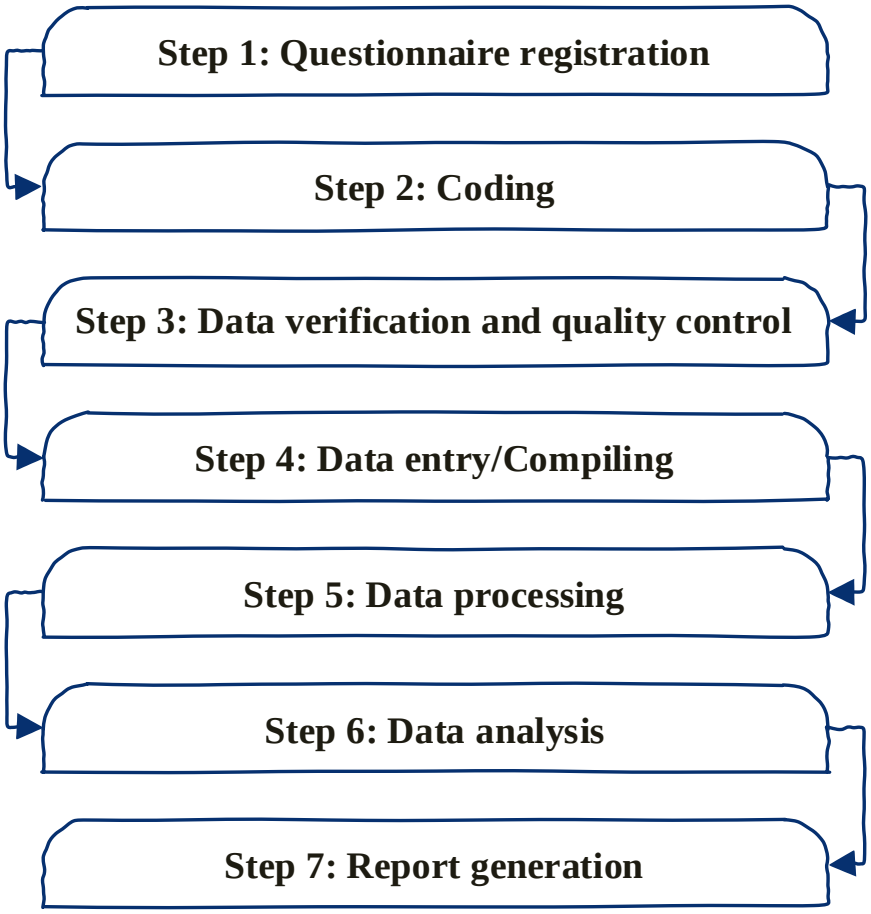



Table 2.3 Data Management, Analysis and Reporting Steps

The work of enumerators were constantly monitored and supervised by the consultants. The consultants made random visits to ensure quality control of data collection. Each enumerator was responsible for data collection from respective areas. The study supervisors/consultants were responsible for supervising the data collection work in the field. besides, the filled-up questionnaires were also checked and verified properly by the consultants.

## *2.9. Quality Control Mechanism*

The Team Leader and other specialists were in constant touch with the field enumerators so that they can seek instructions on the concepts, definitions and difficulties encountered in carrying out the fieldwork under the actual operational condition. All members of the consultant team undertaken monitoring of field study activities at randomly selected places to oversee the study activities to ensure quality. In addition, qualities of data collection of the investigators were monitored over mobile communication to the team. To

ease the data collection activities, the ***firm was*** arranged necessary letter and identity card. To ensure a quality study, various steps were followed.

## *2.10. Data Management, Data Analysis and Report Preparation*

Data management, processing and analysis were included registration of the questionnaires, coding, data verification and quality control, data punching, data processing and finally the analysis to generate the required output. Computer aided data processing and analysis techniques were used for which a systematic approach was followed, where each and every activity were properly identified. The steps are described below in detail:

## *2.11. Data End Programme and Procedures*

At the end of data collection from field, all the filled-up questionnaires were given a number, which was called "registration" to provide each questionnaire a separate identification. Then information given by the interviewees was transformed into the form that could be analyzed easily. Following steps were followed in this regard.

## *2.12. Data Editing, Coding and Cleaning*

Each questionnaire was edited and coded before entering into the computer. Coding of information was initially done by coders with guidance of the experts and then verified by coding verifiers provided by the firm as extra manpower.

## *2.13. Format of Data Supplied for Analysis*

The Data processing was involved in two important steps. The first step was to categorize questions and to allocate answer to them. The purpose of coding was to classify the answers to a question into meaningful categories. Another step of data processing was to entry data in software by the computer programmer assigned by the consultant.

## *2.14. Data Analysis and Tabulation Plan*

In line with the requirements of the TOR, the Team Leader and other consultants of the survey designed dummy tables, which have been used by the specialist Data Analyst. A lucid analysis has been made using some statistical tools. For a sound and meaningful analysis of collected information, various categories of statistical information and data have been adopted. The whole samples have been made with status of respondents, sex, age, education, occupation and ethnicity segmentation. After necessary discussion and receiving

approval from Authority, the data analysis was done to fit into the tabulation plan with interpretations. Preliminary analyses were carried out the in the field throughout the study process: all survey data, information and interview notes, FGD outcomes and KII were constantly reviewed and validated. Finally, the full report was prepared and presented in the workshop before relevant stakeholders. After incorporating feedback, the report was finalized. The report contained recommendation and suggestion on the secondary level ICT based education which would be expected to more effective for the overall development of the secondary level education.

# Chapter 3. Findings from the Study

## *3.1. Demographic Characteristic*

### *3.1.1. Sample distribution by institutional category*

The overall number of participants comes to 1200. 70.2% of the participants in this study came from secondary schools, while the remaining 29.8% came from Madrasah. Details are shown in figure 4.1.

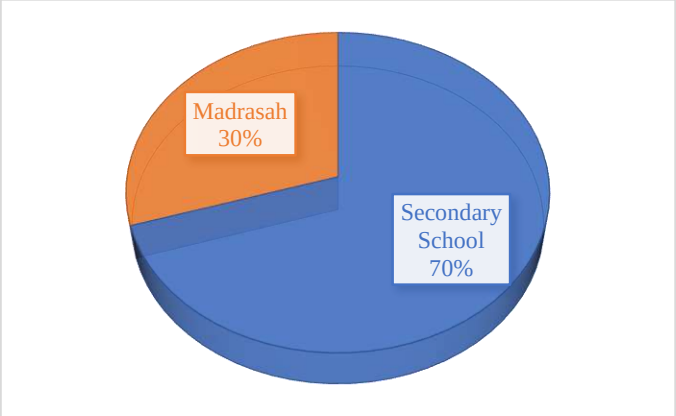



Figure 3.1 Sample distribution by institutional category

### *3.1.2. Sample distribution by administrative division*

As shown in Table 4.1, of respondents from the secondary school (and madrasah) surveys, mostly respondents were from Rajshahi (n=117) followed by Chattogram (n=112) while lowest respondents were from Khulna in case of both secondary school (n=75) and madrasah (n=31). The majority of respondents of madrasah students come from the Rajshahi division (n=50).

Table 4.1: Sample distribution by administrative division

| Division wise Sample Distribution | | |
|---|---|---|
| Division | Secondary School | Madrasah |
| Dhaka | 110 | 45 |
| Chattogram | 112 | 48 |
| Rajshahi | 117 | 50 |
| Rangpur | 105 | 44 |
| Khulna | 75 | 31 |
| Barisal | 109 | 47 |
| Sylhet | 106 | 46 |
| Mymensingh | 108 | 47 |
| Total | 842 | 358 |

### *3.1.3. Sample distribution: types of institutes by regional*

Table 3.1 Sample distribution: types of institutes by regional

| | Urban | | Rural | | Total | |
|---|---|---|---|---|---|---|
| | Count | % | Count | % | Count | % |
| Secondary School | 227 | 65 | 615 | 72 | 842 | 70 |
| Madrasah | 122 | 35 | 236 | 28 | 358 | 30 |
| Total (N) | 349 | 100 | 851 | 100 | 1200 | 100 |

### *3.1.4. Sample distribution by institutional type*

According to table 4.4, the majority of the participants come from MPO-listed institutes, which number 1,053 in total, followed by govt. institutes, which number 84. The remaining 63 responders are from institutions that are non-govt.

Table 3.2 Sample distribution by institutional type

| | Govt. | | MPO | | Non-Govt | | Total |
|---|---|---|---|---|---|---|---|
| | Count | % | Count | % | Count | % | |
| Secondary School | 83 | 98.8 | 736 | 69.9 | 23 | 36.5 | 70.2 |
| Madrasah | 1 | 1.2 | 317 | 30.1 | 40 | 63.5 | 29.8 |
| Total (N) | 84 | 100 | 1053 | 100 | 63 | 100 | 100 |

### *3.1.5. Sample distribution by Gender*

Based on the data in table 4.5, there are 935 males (78%) and 265 females (22%). Figure shows that there were 76% male respondents and 24% female respondents from secondary schools, whereas there were 83% male mail respondents and 17% female mail respondents from madrasah (Figure 4.2). Compared to the female respondents from madrasah, the male respondents from madrasah were more willing to take part in this research. On the other hand, the female respondents from madrasah were less willing to take part.

Table 3.3 Sample distribution by Gender

| | Secondary School | | Madrasah | | Total | |
|---|---|---|---|---|---|---|
| | Amount | (%) | Amount | (%) | Amount | (%) |
| Male | 637 | 76 | 298 | 83 | 935 | 78 |
| Female | 205 | 24 | 60 | 17 | 265 | 22 |
| Total | 842 | 100 | 358 | 100 | 1200 | 100 |

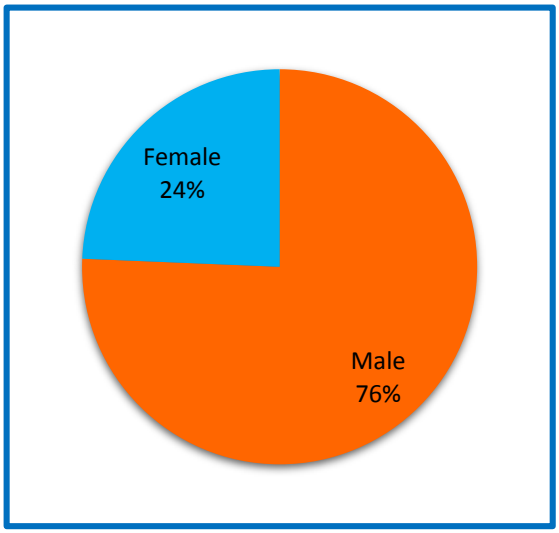



Figure 3.2 Respondent Gender (Secondary School)

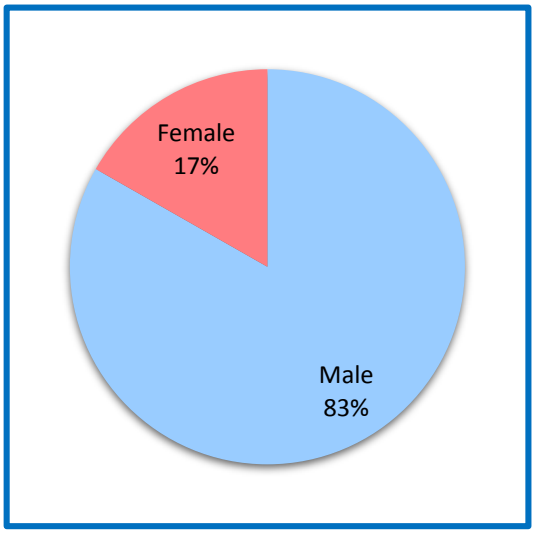



Figure 3.3 Respondent Gender (Madrasah)

### *3.1.6. Sample distribution by respondent's educational level*

According to what was presented before, there are a significant number of students involved in secondary schools than in madrasahs. The vast majority of the responders are now participating in secondary schools' ninth and tenth grades. Only 13% of responses were from class 6, which represents a rather low educational level. The results suggest that the trustworthiness of the response with respect to the research objective may be more reliable given that the majority of the respondents are from higher levels of education within the setting of the study. However, at the highest level of education (Class 10), there are equal number (23%) of participants from secondary and madrasah.

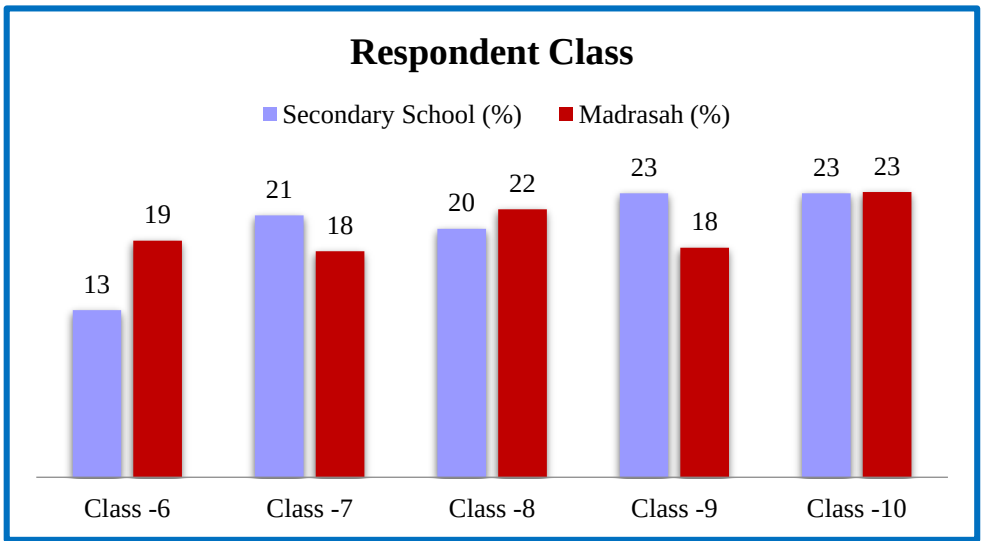



Figure 3.4 Sample distribution by respondent's educational level

Table 3.4 Average age of the respondent

| Class | Secondary School | Madrasah |
|---|---|---|
| | Ave. Age | Ave. Age |
| Class -6 | 11.50 | 11.68 |
| Class -7 | 12.97 | 13.03 |
| Class -8 | 13.90 | 14.00 |
| Class -9 | 14.99 | 15.00 |
| Class -10 | 15.98 | 15.96 |
| Total (N) | 842 | 358 |

Table 3.5 Summary of the overall Sample distribution

| Quantitative | | Qualitative | |
|---|---|---|---|
| Survey | | Survey | |
| | Actual | | Actual |
| Student | 1200 | KII | 20 |
| Teacher | 167 | FGD | 8*12 = 96 |
| | | Observation | 120 |
| Total (N) | 1367 | | 236 |

## *3.2. Followings are the Findings regarding the research objective*

### *3.2.1. Objective 1: To explore what kind of ICT device has been used for secondary education*

The findings show that every single school in the Rajshahi division has a projector making it the only division in Bangladesh with such a high percentage followed by Mymensingh division (93%). Schools in Sylhet and Mymensingh also have a 100% penetration rate of having laptop. The laptop computer is the most widely accessible gadget in secondary schools (92% availability rate), followed by projectors 78% of the time (average percentage of overall division) (Figure XX). The situation is rather different when it comes to madrasahs. Despite the fact that laptops (55%) are the most commonly available device, desktop computers (53%) are the devices that comes in second place on average when grouped by division (average percentage of overall division) (Figure XX). Surprisingly, according to the students from secondary and madrasah schools, it is important to note that although in Rajshahi, 61% of replies concerning the availability of ICT devices are from secondary schools, the penetration is reversed in the Dhaka division. The availability of ICT devices in secondary schools (51%) is lower in the Dhaka division than it is in madrasahs (58%).

However, though, the DVD and CD are still available in some schools in Dhaka (20%), Chttogram (13%), Sylhet (20%) and Mymensingh (20%), these devices are not available in Rajshahi, Rangpur, Khulna, and Barisal (0%). Despite the fact that projectors are one of the most widely used ICT devices in contemporary classrooms, only 40% of Khulna's educational institutions have projectors. Similarly, only 7% response comes from Rangpur's school that they have photocopier machine. However, there is a satisfactory response from the secondary school's students that their school has pen drive.

Table: Availability of ICT devices in the Institute (evidence from School's students)

| Category | Division | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
| | % | % | % | % | % | % | % | % |
| Desktop Computer | 67% | 53% | 67% | 13% | 80% | 67% | 67% | 73% |
| Laptop Computer | 80% | 87% | 100% | 87% | 87% | 93% | 100% | 100% |
| Projector | 87% | 67% | 100% | 80% | 40% | 67% | 87% | 93% |
| Printer | 27% | 33% | 73% | 7% | 27% | 40% | 87% | 60% |
| Digital Camera | 73% | 7% | 47% | 7% | 53% | 20% | 27% | 47% |
| Photocopier | 80% | 20% | 60% | 7% | 53% | 13% | 13% | 20% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Tablet | 47% | 13% | 20% | 7% | 13% | 7% | 27% | 33% |
| Pen drive | 27% | 47% | 80% | 73% | 53% | 60% | 27% | 73% |
| Scanner | 13% | 13% | 60% | 7% | 27% | 20% | 40% | 33% |
| Microphone | 7% | 20% | 40% | 13% | 20% | 33% | 53% | 33% |
| DVD and CD | 20% | 13% | 0% | 0% | 0% | 0% | 20% | 20% |
| Mobile Smart Phone | 87% | 73% | 87% | 47% | 93% | 53% | 73% | 80% |

Moreover, it is worth noting that, the madrasahs from Dhaka division have more smartphone device (90%) than the laptop (80%) and desktop (70%). This argument also supported while computing overall average of the ICT device. Overall investigation of availability of ICT devices in madrasah illustrate that, they owned 75% smart phone device which is comparatively higher that laptop (55%) and projector (51%). Furthermore, according to madrasah students, their institute has no tablet, and DVD and CD (0%) device. By the way in case of having pen drive, madrasahs (64%) have more pen drive device than schools (55%). More insightfully, madrasah from Barisal division (26%) is the most vulnerable group of having ICT device. They have no microphone and even no photocopier (%).

Table 3.6 Availability of ICT devices in the Institute (evidence from Madrasah's students)

| Category | Division | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
| | % | % | % | % | % | % | % | % |
| Desktop Computer | 70% | 53% | 60% | 30% | 67% | 36% | 55% | 53% |
| Laptop Computer | 80% | 40% | 80% | 40% | 60% | 20% | 70% | 47% |
| Projector | 70% | 47% | 50% | 33% | 60% | 20% | 70% | 60% |
| Printer | 60% | 33% | 30% | 13% | 80% | 10% | 60% | 47% |
| Digital Camera | 30% | 13% | 10% | 14% | 20% | 10% | 30% | 13% |
| Photocopier | 20% | 13% | 23% | 7% | 10% | 0% | 10% | 20% |
| Pen drive | 80% | 27% | 80% | 73% | 60% | 70% | 50% | 73% |
| Scanner | 40% | 7% | 10% | 7% | 30% | 10% | 20% | 47% |
| Microphone | 40% | 7% | 10% | 0% | 20% | 0% | 20% | 20% |
| Mobile Smart Phone | 90% | 60% | 80% | 80% | 70% | 80% | 70% | 73% |

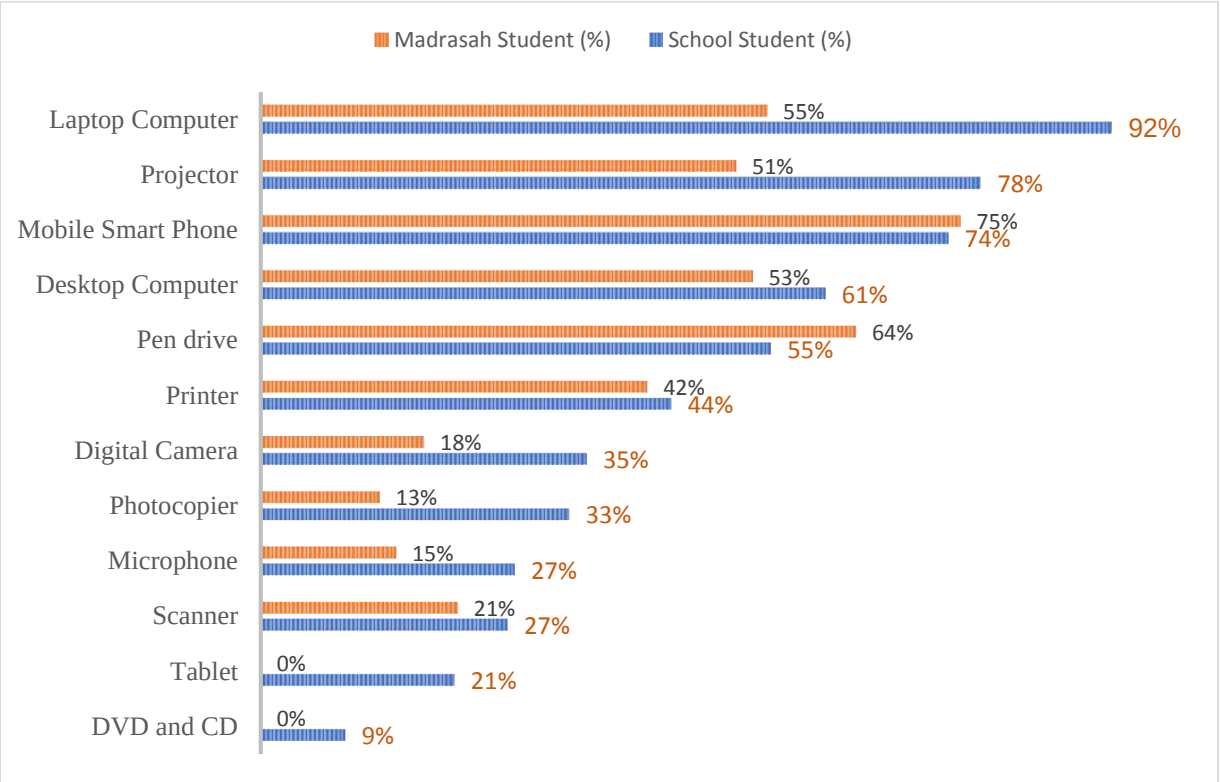



Figure 3.5 Comparison of availability of ICT devices in institute (Evidence from students)

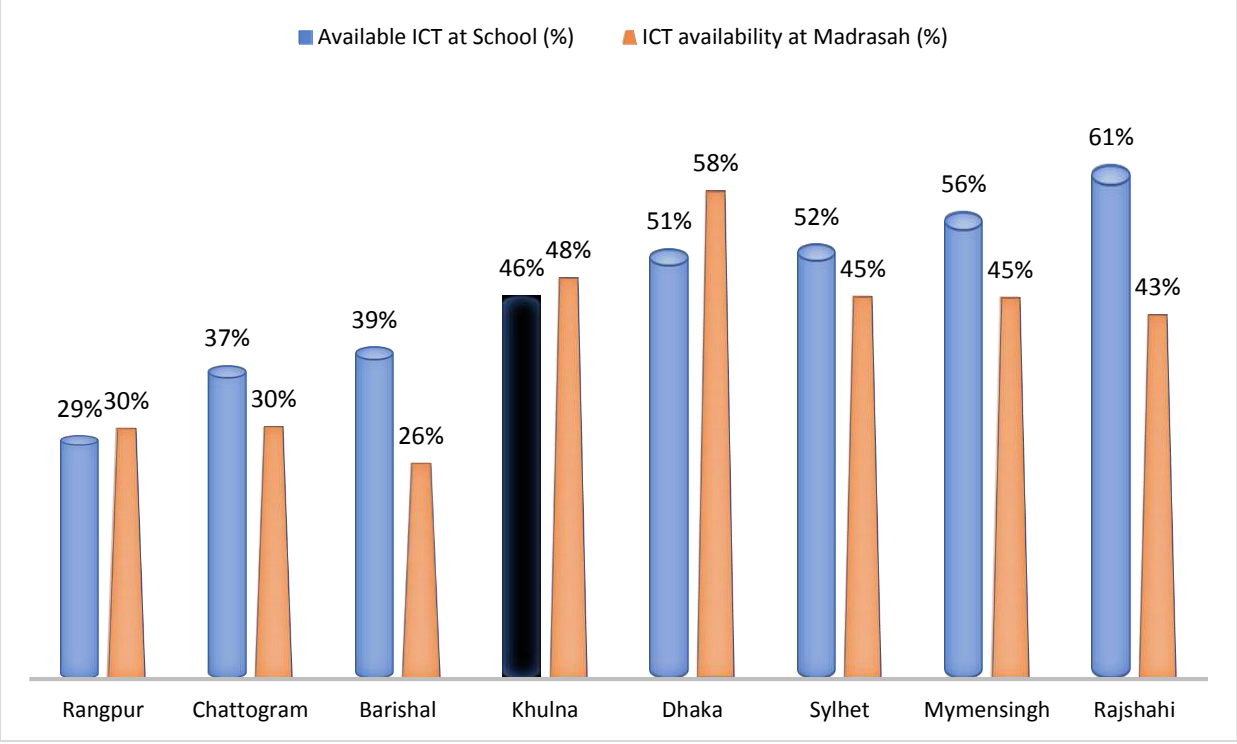



Figure 3.6 Comparison of availability of ICT devices by division (Evidence from students)

The responses of instructors in the context of the availability of ICT devices in secondary schools and madrasahs are very comparable to the data supplied by students in the preceding tables. Students from secondary schools in Rajshahi and Mymensingh said that their institute have laptop (100% response). The responses given by teachers teaching in secondary schools in Rajshahi and Mymensingh add credibility to the findings presented here. In the cases of Dhaka, Chattogram, and Sylhet, it was discovered that there are some information gaps. It was discovered that there were some response gaps by students and teachers. However, overall average indicated that 89% institute has laptop in secondary schools followed by projectors and smart phone (66%). In case of madrasah institute, on an overall average 87% institute have laptops followed by projectors (82%) and printers (71%). According to the responses of students, madrasahs from Barisal (26%) is the institution with the least amount of ICT devices. Same responses come from teachers, that madrasahs from Barisal (15%) is the institute with the least amount of ICT device.

Table 3.7 Availability of ICT devices in the Institute (evidence from school teachers)

| Category | Division | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
| | % | % | % | % | % | % | % | % |
| Desktop Computer | 63% | 53% | 63% | 67% | 23% | 47% | 81% | 67% |
| Laptop Computer | 100% | 100% | 100% | 93% | 45% | 87% | 88% | 100% |
| Projector | 75% | 94% | 94% | 87% | 36% | 33% | 25% | 87% |
| Printer | 63% | 71% | 75% | 47% | 23% | 27% | 81% | 87% |
| Digital Camera | 19% | 0% | 63% | 13% | 18% | 27% | 0% | 53% |
| Photocopier | 19% | 35% | 6% | 33% | 0% | 27% | 19% | 20% |
| Pen drive | 69% | 65% | 88% | 87% | 32% | 60% | 38% | 87% |
| Scanner | 44% | 41% | 88% | 33% | 9% | 40% | 81% | 60% |
| Microphone | 38% | 35% | 38% | 13% | 0% | 27% | 25% | 33% |
| DVD and CD | 6% | 0% | 0% | 13% | 5% | 20% | 0% | 7% |
| Mobile Smart Phone | 75% | 76% | 75% | 47% | 41% | 67% | 50% | 93% |

Table 3.8 Availability of ICT devices in the Institute (evidence from madrasah teachers)

| Category | Division | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
| | % | % | % | % | % | % | % | % |
| Desktop Computer | 100% | 50% | 75% | 40% | 40% | 0% | 50% | 50% |
| Laptop Computer | 100% | 100% | 75% | 80% | 100% | 40% | 100% | 100% |
| Projector | 100% | 100% | 75% | 100% | 80% | 0% | 100% | 100% |
| Printer | 75% | 100% | 50% | 80% | 100% | 40% | 100% | 25% |
| Digital Camera | 0% | 50% | 25% | 40% | 40% | 0% | 0% | 25% |
| Photocopier | 0% | 50% | 0% | 20% | 60% | 0% | 0% | 50% |
| Pen drive | 50% | 75% | 50% | 60% | 80% | 40% | 50% | 50% |
| Scanner | 25% | 50% | 50% | 40% | 100% | 0% | 50% | 50% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Microphone | 50% | 50% | 50% | 40% | 40% | 0% | 25% | 0% |
| Mobile Smart Phone | 75% | 50% | 75% | 40% | 80% | 40% | 50% | 50% |

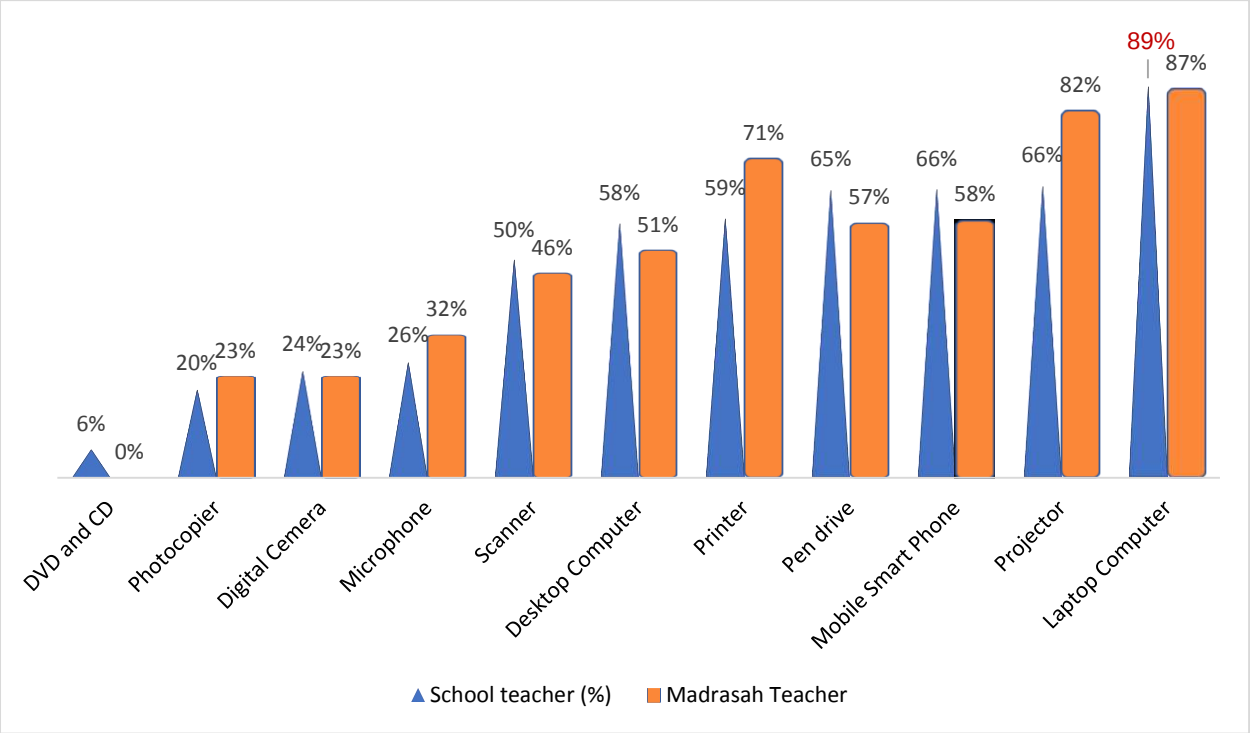



Figure 3.7 Comparison of availability of ICT devices in institute (Evidence from teachers)

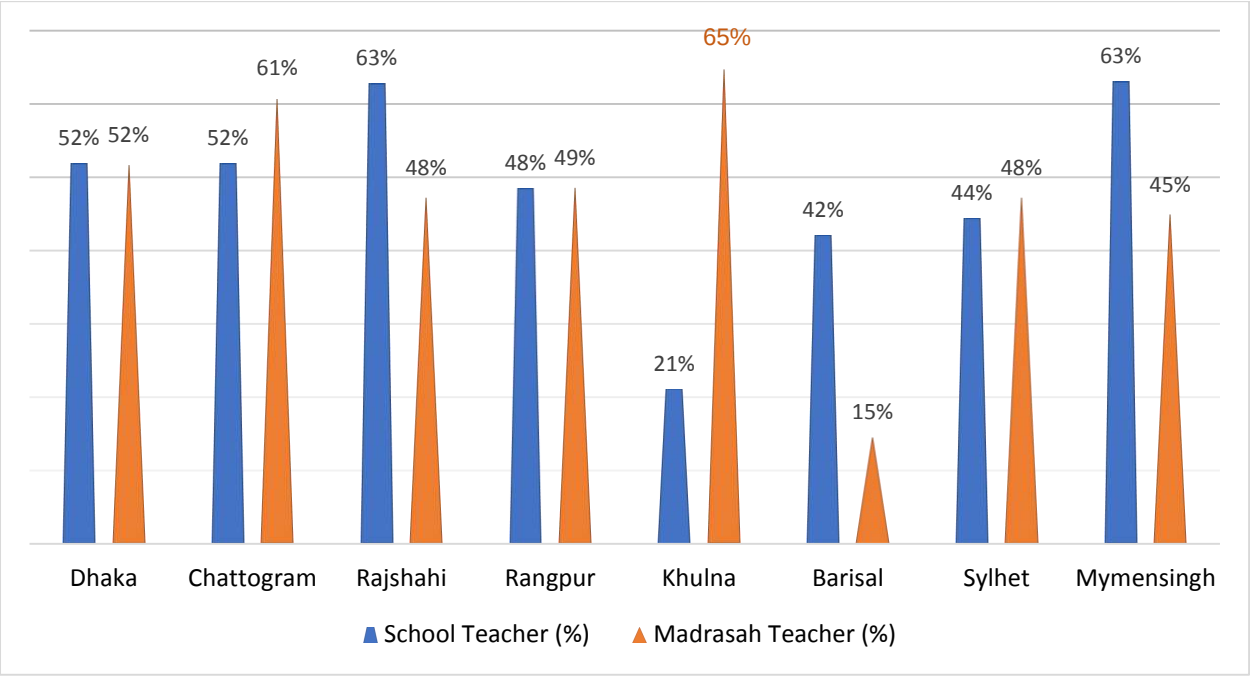



Figure 3.8 Comparison of availability of ICT devices by division (Evidence from teachers)

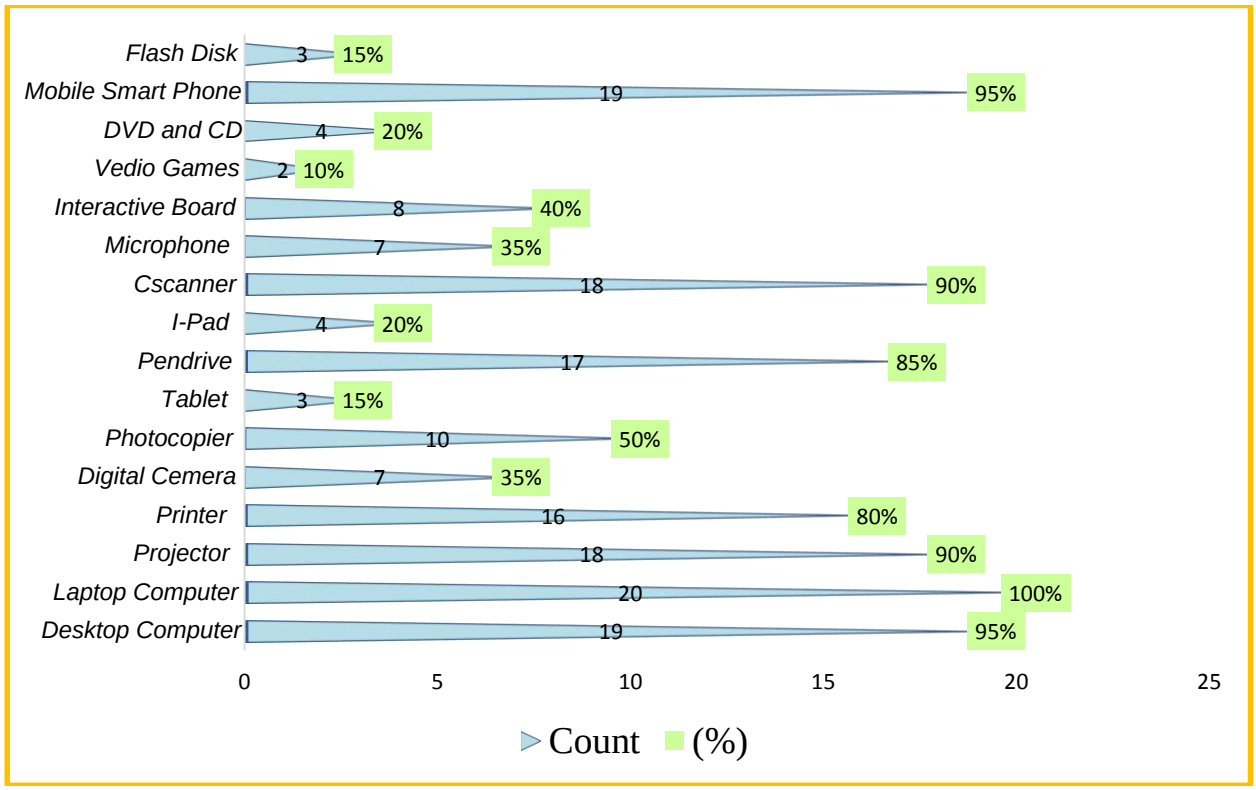



Figure 3.9 Use of ICT Devices in the Educational Institutions (Evidence from officials)

Finally, the survey with the officials provides the evidence that 100% of the institute has the laptop computer followed by desktop computers (95%) and mobile smart phone (95%). In certain contexts, the responses of students and teachers from secondary schools and madrasahs are consistent with this conclusion. Nevertheless, the educational institute has projectors (90%), scanners (90%), and pen drives (85%) among its accessible technologies. Even if flash discs aren't used in today's cutting-edge technology, just around 15% of educational institutions have access to this equipment. On the other hand, 80% of educational institutions don't have a printer.

Table 3.9 Availability of ICT devices in the Institute (evidence from school teachers)

| Category | Division | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
| | % | % | % | % | % | % | % | % |
| Desktop Computer | 58% | 50% | 23% | 45% | 20% | 45% | 50% | 36% |
| Laptop Computer | 50% | 58% | 38% | 73% | 40% | 64% | 70% | 55% |
| Projector | 50% | 42% | 23% | 55% | 30% | 55% | 60% | 45% |
| Pen Drive | 42% | 50% | 15% | 36% | 20% | 36% | 40% | 27% |
| Printer | 42% | 8% | 31% | 27% | 10% | 18% | 20% | 45% |
| Smart Phone | 50% | 17% | 31% | 55% | 0% | 18% | 20% | 55% |
| Microphone | 25% | 25% | 15% | 0% | 0% | 0% | 0% | 18% |
| Scanner | 42% | 42% | 0% | 0% | 10% | 36% | 40% | 27% |
| Digital Camera | 25% | 8% | 0% | 0% | 0% | 0% | 0% | 0% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Tablet | 8% | 8% | 0% | 0% | 0% | 0% | 0% | 0% |
| LED Monitor | 25% | 17% | 0% | 0% | 0% | 0% | 0% | 0% |

### *3.2.2. Objective 2: To explore the effectiveness of teaching using ICT devices*

The findings show that every single school in Dhaka division is using ICT devices in the classroom of Bangladesh with such a high percentage followed by Mymensingh division (87%). But less ICT devices are used in Chattogram (28%) and Rangpur division (21%). However, Madrasah students are using ICT devices in Dhaka division with 84% which is higher than rajshahi division 66%. But in Barisal division with 94% madrasah students don't uses ICT devices in their classroom.

Table 3.10 Use of ICT devices in the classroom

| Category | Use of ICT devices in the classroom (School's students) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh | Grand Total |
| | % | % | % | % | % | % | % | % | % |
| Yes | 88 | 72 | 83 | 79 | 83 | 86 | 85 | 87 | 82.9 |
| No | 12 | 28 | 17 | 21 | 17 | 14 | 15 | 13 | 17.1 |
| Total (n) | 110 | 112 | 117 | 105 | 75 | 109 | 106 | 108 | 842 |
| | Use of ICT devices in the classroom (Madrasah's students) | | | | | | | | |
| Yes | 84 | 58 | 66 | 52 | 71 | 6 | 54 | 62 | 56.1 |
| No | 16 | 42 | 34 | 48 | 29 | 94 | 46 | 38 | 43.9 |
| Total (n) | 45 | 48 | 50 | 44 | 31 | 47 | 46 | 47 | 358 |

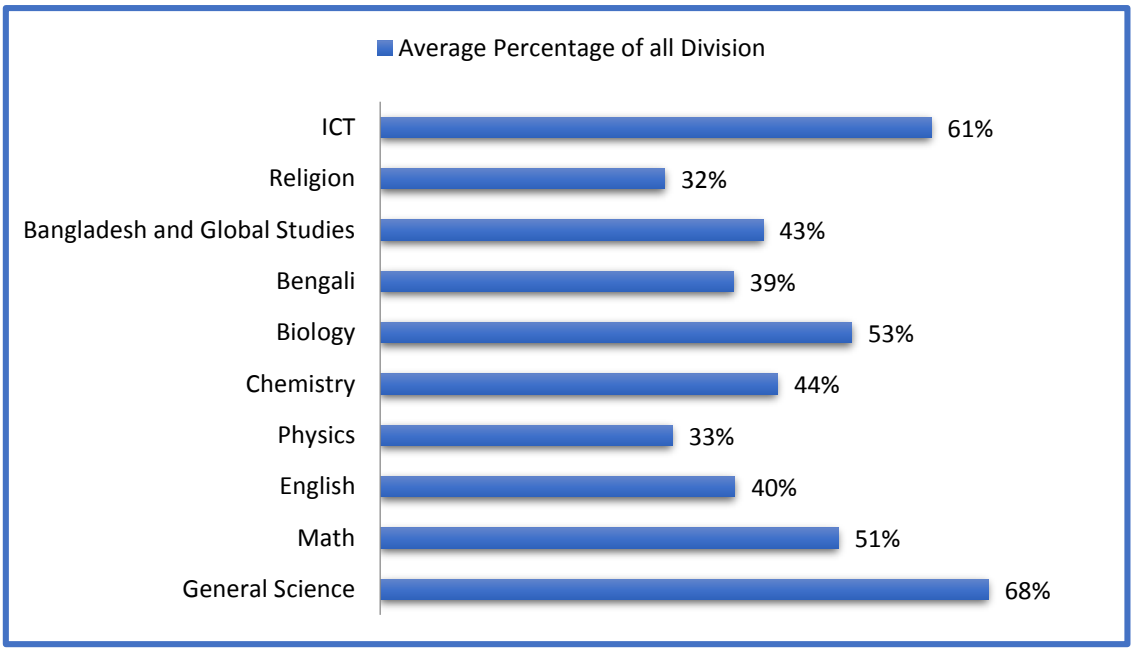



Figure 3.10 Learning the subjects on the class using multimedia by School's students

The results obtained from table that would want to examine the effectiveness of ICT integration for teachers in teaching the students of their school. In Dhaka, Rajshahi and Sylhet division teachers are teaching 100% with ICT devices in their classroom. But in Barisal division 13% school teachers are not using ICT devices for teaching. However, madrasah teachers are also using ICT devices in their classroom for betterment of their students. In Dhaka, Khulna, Sylhet and Mymensingh division, all the teachers of madrasah are using 100% ICT devices in their classroom. More than 40% madrasah teacher are not using ICT devices in Barisal. In Barisal division, school & madrasah teachers are not willing to use ICT devices in their classroom.

Table 3.11 Effectiveness of ICT devices for teaching management

| The benefit of ICT devices for the management of teaching in the institution (School's teacher) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh | |
| Yes | 100 | 94 | 100 | 93 | 95 | 87 | 100 | 100 | 96 |
| No | 0 | 6 | 0 | 7 | 5 | 13 | 0 | 0 | 4 |
| Total | 16 | 17 | 16 | 15 | 22 | 15 | 16 | 15 | 132 |
| The benefit of ICT devices for the management of teaching in the institution (Madrasah's teacher) | | | | | | | | | |
| Yes | 100 | 75 | 80 | 75 | 100 | 60 | 100 | 100 | 86 |
| No | 0 | 25 | 20 | 25 | 0 | 40 | 0 | 0 | 14 |
| Total | 4 | 4 | 5 | 4 | 5 | 5 | 4 | 4 | 35 |

Moreover, 78% School management believe that ICT devices are very important in their classroom. Barisal division with highest percentage shows the significance of the ICT device use in their classroom which is greater than Dhaka and Mymensingh division. In madrasah, management believe that the significance of the use of ICT devices is very much important in Dhaka and Sylhet division. Now a day's most of the division are using ICT devices in madrasah classroom which has a great significance.

Table 3.12 The significance of the use of ICT devices in classroom management in educational institutions

| Response from Secondary School Teachers | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Category | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh | Total |
| Important | 19 | 29 | 25 | 13 | 32 | 7 | 31 | 13 | 22 |
| Very important | 81 | 71 | 75 | 87 | 68 | 93 | 69 | 87 | 78 |
| Total | 16 | 17 | 16 | 15 | 22 | 15 | 16 | 15 | 132 |
| Response from Madrasah's Teachers | | | | | | | | | |
| Important | 0 | 25 | 40 | 75 | 20 | 20 | 0 | 25 | 26 |
| Very important | 100 | 75 | 60 | 25 | 80 | 80 | 100 | 75 | 74 |
| Total | 4 | 4 | 5 | 4 | 5 | 5 | 4 | 4 | 35 |

In pie chart we can say that 75% teachers are able to use ICT devices in their classroom. For ICT training, most of the time teachers are selecting on the basis of their qualification & positive attitudes. Age & experience are not so much required than qualification and attitudes. In board exams, students are having enough improvement through the use of ICT devices-based class. Absolutely 40% student-friendly was the student learning due to the use of ICT devices. 5% are said that ICT devices use are not student friendly. In particular way the use of ICT devices, student learning activities are playing a role as teaching aids.

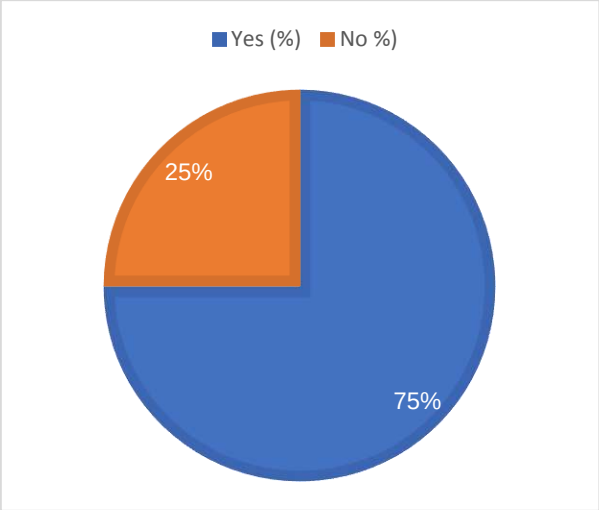



Figure 3.11 Whether trained teachers are able to use ICT devices enough?

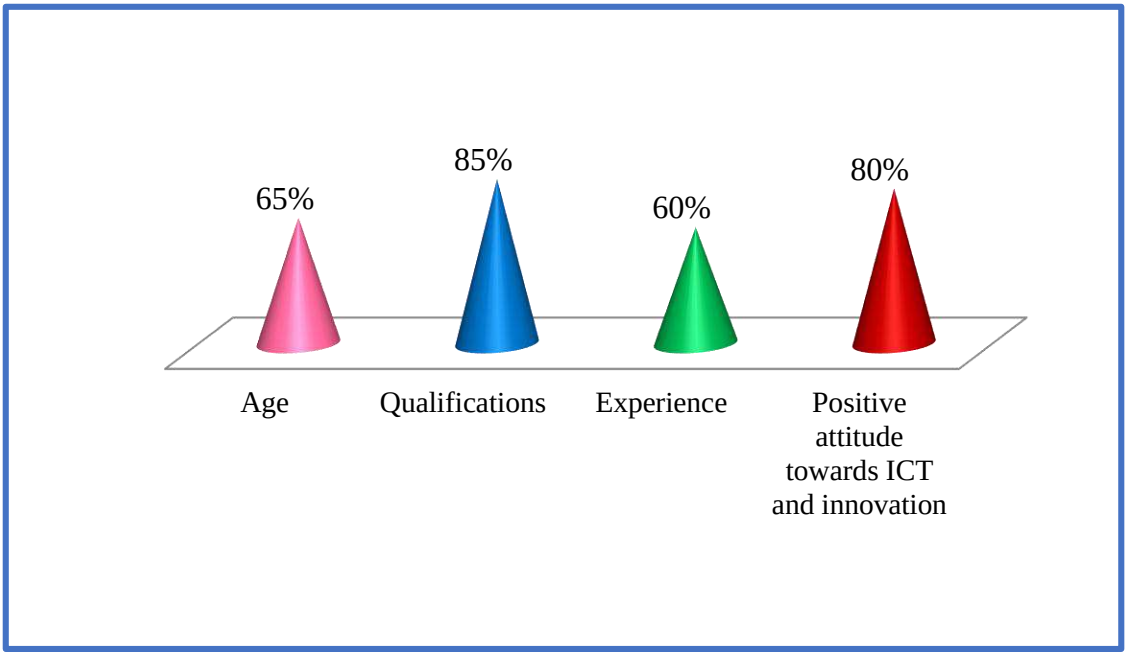



Figure 3.12 Things to consider when selecting Teachers for ICT training

Table 3.13 Improvement in JSC / SSC / JDC / HSC examination results through the use of ICT devices-based class.

| Category | | |
|---|---|---|
| Enough | Amount | (%) |
| Medium | 11 | 55 |
| A little | 7 | 35 |
| Total | 2 | 10 |

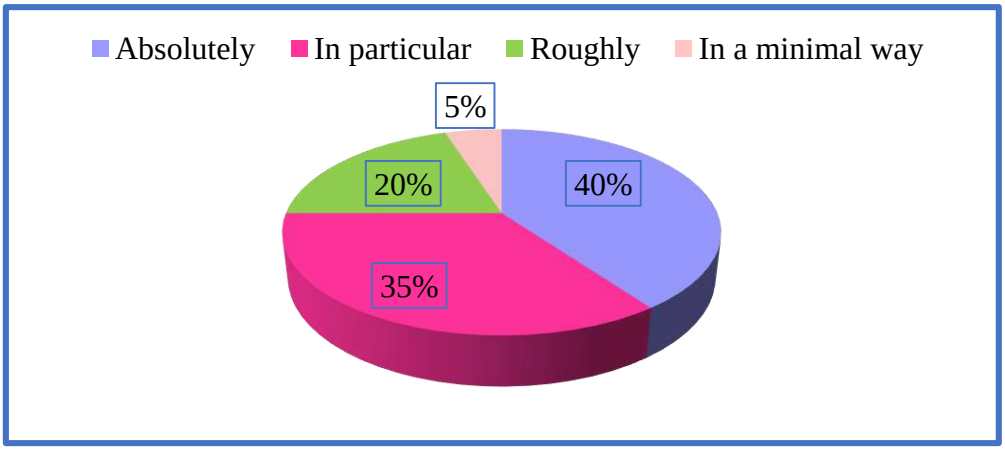



Figure 3.13 Penetration of student-friendly student learning due to the use of ICT devices?

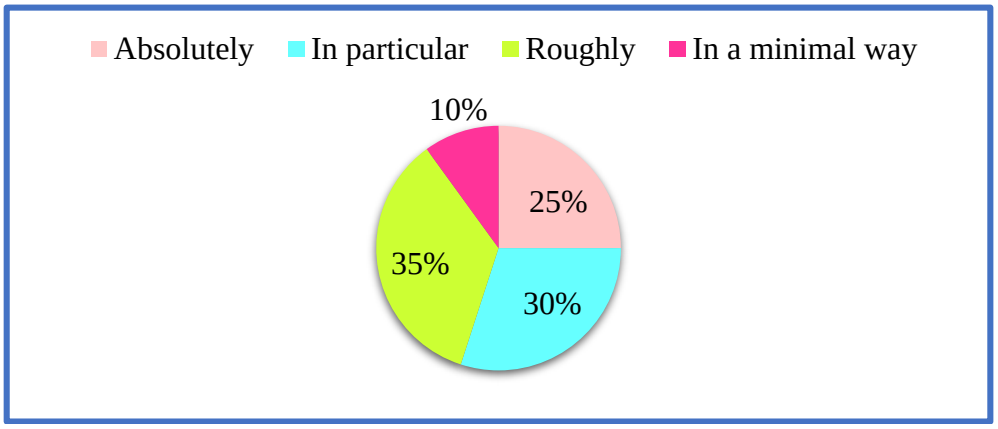



Figure 3.14 Penetration of use of ICT devices, student learning activities

In particular way, Dhaka division School teacher's perceptions about students are more attentive and motivated to manage classrooms through ICT devices. But in Rangpur division (20%) students are less attentive and motivated when ICT devices are using in their class room. 75% madrasah teachers' perception that Dhaka division students are more attentive and motivated to manage classrooms through ICT devices. But in Rajshahi &

Barisal students are less attentive and motivated through using ICT devices in their classroom.

Table 3.14 Feedback on how students are more attentive and motivated to manage classrooms through ICT devices

| School teacher's perception | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh | Total |
| | % | % | % | % | % | % | % | % | % |
| 1. In particular | 100 | 41 | 56 | 20 | 41 | 87 | 63 | 53 | 53 |
| 2. Roughly | 25 | 53 | 44 | 80 | 50 | 13 | 38 | 40 | 43 |
| 3. In a minimal way | 6 | 6 | 0 | 0 | 9 | 0 | 0 | 7 | 4 |
| Total | 16 | 17 | 16 | 15 | 22 | 15 | 16 | 15 | 132 |
| Madrasah teacher's perception | | | | | | | | | |
| 1. In particular | 75 | 50 | 60 | 25 | 20 | 40 | 25 | 75 | 46 |
| 2. Roughly | 25 | 25 | 20 | 25 | 80 | 40 | 75 | 0 | 37 |
| 3. In a minimal way | 0 | 25 | 20 | 50 | 0 | 20 | 0 | 25 | 17 |
| Total | 4 | 4 | 5 | 4 | 5 | 5 | 4 | 4 | 35 |

In Dhaka, Rajshahi, Barisal & Mymensingh division, ICT devices are so much important which is helping school students to improve the assessment process. But in Chattogram division (12%) ICT device is very much important for assessment process. Moreover, madrasah students are doing their assessment process with the help of ICT devices. In Dhaka, Khulna and Mymensingh division, ICT devices are important to do the assessment process. But in Chattogram division (50%) ICT devices are very much important to help students improve the assessment process.

Table 3.15 Whether ICT devices help students improve the assessment process

| School teacher's perception | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Category | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh | Total |
| Important | 100 | 88 | 100 | 93 | 91 | 100 | 94 | 100 | 95 |
| Very important | 0 | 12 | 0 | 7 | 9 | 0 | 6 | 0 | 5 |
| Total | 16 | 17 | 16 | 15 | 22 | 15 | 16 | 15 | 132 |
| Madrasah teacher's perception | | | | | | | | | |
| Important | 100 | 50 | 60 | 50 | 100 | 60 | 75 | 100 | 74 |
| Very important | 0 | 50 | 40 | 50 | 0 | 40 | 25 | 0 | 26 |
| Total | 4 | 4 | 5 | 4 | 5 | 5 | 4 | 4 | 35 |

### *3.2.3. Objective 3: To examine the effectiveness of student's learning using these devices*

ICT devices are most effective for student's learning. 47% students are more focused and motivated in managing school classroom trough ICT devices. In madrasah, 40% students are more focused and motivated in managing classrooms through ICT devices. ICT devices are helping students to improve their learning and makes them effective and focused.

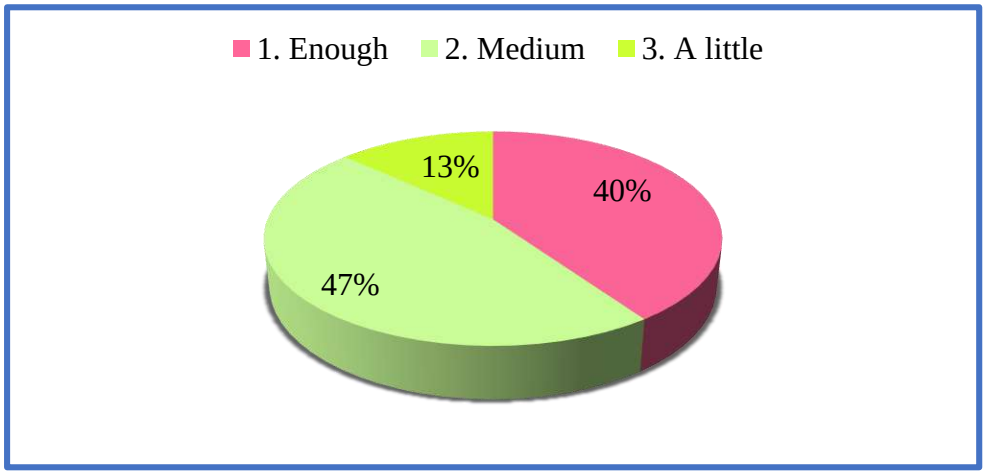



Table 3.16 Students' motivation in managing classrooms through ICT devices (School teacher)

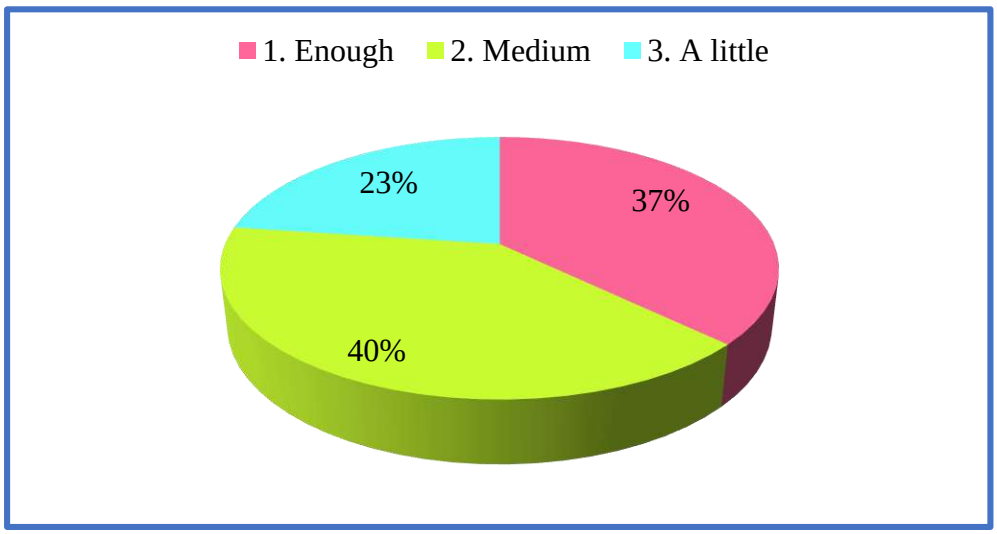
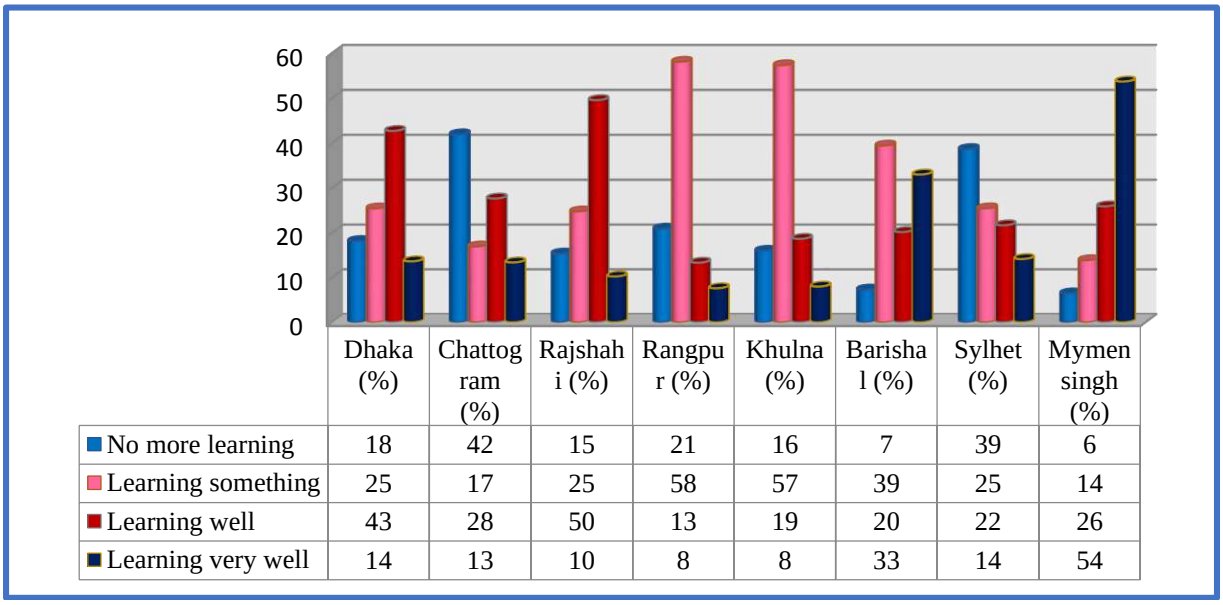


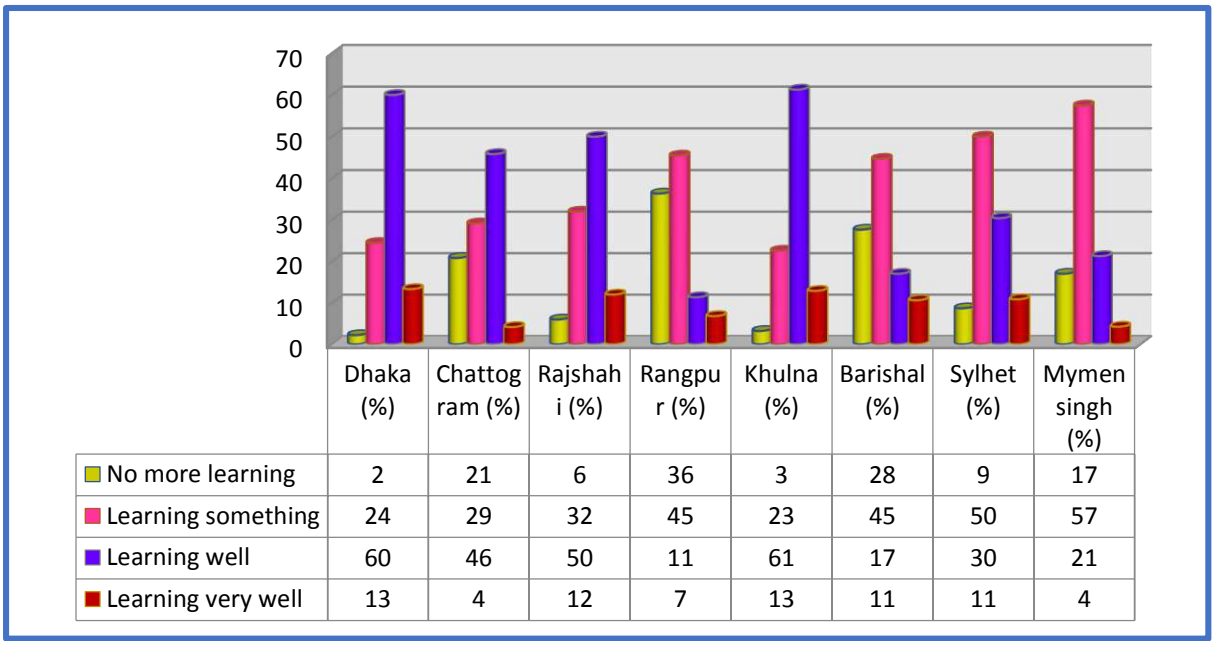

**Table 3.17 Students' motivation in managing classrooms through ICT devices (Madrasah teacher)**

Schools' students are no more learning 42% in Chattogram divisions, learning something 58% in Rangpur division, learning well 50% in Rajshahi division and learning very well 54% in Mymensingh division. Moreover, Madrasah students are no more learning 36% in Rangpur division, learning something 57% in Mymensingh division, learning well 61% in Khulna division and learning very well 13% in Dhaka division.




| | Dhaka (%) | Chattogram (%) | Rajshahi (%) | Rangpur (%) | Khulna (%) | Barishal (%) | Sylhet (%) | Mymensingh (%) |
|---|---|---|---|---|---|---|---|---|
| No more learning | 18 | 42 | 15 | 21 | 16 | 7 | 39 | 6 |
| Learning something | 25 | 17 | 25 | 58 | 57 | 39 | 25 | 14 |
| Learning well | 43 | 28 | 50 | 13 | 19 | 20 | 22 | 26 |
| Learning very well | 14 | 13 | 10 | 8 | 8 | 33 | 14 | 54 |

Figure 3.15 Effectiveness of use of ICT device in the classroom (School's student learning)




| | Dhaka (%) | Chattogram (%) | Rajshahi (%) | Rangpur (%) | Khulna (%) | Barishal (%) | Sylhet (%) | Mymensingh (%) |
|---|---|---|---|---|---|---|---|---|
| No more learning | 2 | 21 | 6 | 36 | 3 | 28 | 9 | 17 |
| Learning something | 24 | 29 | 32 | 45 | 23 | 45 | 50 | 57 |
| Learning well | 60 | 46 | 50 | 11 | 61 | 17 | 30 | 21 |
| Learning very well | 13 | 4 | 12 | 7 | 13 | 11 | 11 | 4 |

Figure 3.16 Effectiveness of use of ICT device in the classroom (Madrasah's student learning)

School students are getting lots of benefits by using ICT devices in their classes. Students can learn by watching pictures in Mymensingh and Rangpur divisions. Students learn different thing easily in Rajshahi, Barisal and Mymensingh divisions. ICT classes are interesting and enjoyable for students in Rajshahi and Sylhet divisions. In Barisal division class practices are enough for students to conduct the class. Mymensingh division students reduce the stress of studying home through the use of ICT. In Barisal division, ICT classes reduces the student's tendency of memorizing. New things can be learned easily through ICT by students in Rajshahi, Khulna & Barisal divisions. Rajshahi division students get opportunity to know up-to-date information and increases more interest in learning through ICT. ICT devices increases the ability to remember in Barisal division and learning can be done from anywhere at any time in Mymensingh division.

Additionally, Madrasah students derive many benefits from the use of ICT devices in their classrooms. Students can learn by looking at pictures in Dhaka, Rajshahi, Khulna and Mymensingh divisions. Students are learning slightly different things in the Dhaka and Mymensingh divisions. ICT courses are interesting and fun for students in Barisal division. In Dhaka and Rajshahi divisions, classroom practice is sufficient for students to lead the class. Students from Rajshai, Khulna and Barisal departments reduce the stress of learning at home through the use of ICT. In Khulna division, ICT lessons reduce the student's tendency to memorize and new things can be easily learned through ICT lessons. Students in Sylhet Division have the opportunity to receive up-to-date information and increase their interest in learning through ICT in Khulna Division. ICT devices are increasing memory capacity in Rajshahi division and learning can be done from anywhere and anytime in Khulna division.

Table 3.18 Student's learning benefit from the classes using ICT devices (Multiple Ans.)

| Benefits | Division | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
| **School student's learning benefits** | | | | | | | | |
| I can learn by watching at pictures | 73% | 73% | 93% | 100% | 60% | 87% | 80% | 100% |
| We can learn difficult things easily | 60% | 33% | 100% | 27% | 53% | 100% | 40% | 100% |
| Participating in ICT class is enjoyable and interesting | 53% | 20% | 87% | 67% | 67% | 87% | 67% | 60% |
| Class practice is enough to conduct the class | 20% | 13% | 60% | 53% | 53% | 80% | 27% | 40% |
| The use of ICT reduces the stress of studying at home | 27% | 13% | 80% | 13% | 60% | 53% | 47% | 87% |
| Reduces the tendency to memorize | 47% | 33% | 73% | 27% | 33% | 80% | 53% | 73% |
| New things can be learned easily through ICT | 27% | 20% | 80% | 33% | 80% | 80% | 33% | 60% |
| There is ample opportunity to know up-to-date information through ICT | 13% | 7% | 93% | 40% | 53% | 67% | 47% | 27% |
| ICT increases more interest in learning | 33% | 13% | 93% | 60% | 67% | 73% | 67% | 67% |
| Increases the ability to remember | 20% | 7% | 60% | 7% | 47% | 87% | 40% | 60% |
| Learning can be done from anywhere at any time | 20% | 20% | 53% | 13% | 33% | 47% | 20% | 60% |
| **Madrasah student's learning benefits** | | | | | | | | |
| I can learn by watching at pictures | 70% | 50% | 70% | 60% | 70% | 60% | 60% | 70% |
| We can learn difficult things easily | 70% | 30% | 60% | 40% | 60% | 50% | 50% | 70% |
| Participating in ICT class is enjoyable and interesting | 70% | 20% | 70% | 60% | 80% | 40% | 60% | 60% |
| Class practice is enough to conduct the class | 70% | 20% | 70% | 50% | 40% | 20% | 40% | 40% |
| The use of ICT reduces the stress of studying at home | 60% | 20% | 70% | 20% | 70% | 20% | 50% | 60% |
| Reduces the tendency to memorize | 60% | 30% | 60% | 40% | 70% | 50% | 50% | 70% |
| New things can be learned easily through ICT | 60% | 20% | 50% | 20% | 70% | 40% | 10% | 60% |
| There is ample opportunity to know up-to-date information through ICT | 40% | 10% | 60% | 40% | 70% | 20% | 80% | 27% |
| ICT increases more interest in learning | 60% | 20% | 60% | 60% | 70% | 20% | 40% | 67% |
| Increases the ability to remember | 20% | 10% | 70% | 10% | 50% | 40% | 50% | 60% |
| Learning can be done from anywhere at any time | 0% | 20% | 50% | 20% | 80% | 10% | 0% | 60% |

During Covid-19 online classes is conduct to maintain the student's study. During Covid -19, Dhaka divisions most schools and in Chattogram division less schools are conduct online classes for students. Moreover, in madrasah during Covid -19 Khulna division conduct more online classes than Barisal division.

Table 3.19 Conduction of Online classes during Covid-19 or other purposes

| Response from Secondary School Students | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh | Total |
| Yes | 98 | 81 | 92 | 86 | 95 | 87 | 90 | 94 | 90 |
| No | 2 | 19 | 8 | 14 | 5 | 13 | 10 | 6 | 10 |
| Total | 110 | 112 | 117 | 105 | 75 | 109 | 106 | 108 | 842 |
| Response from Madrasah School Students | | | | | | | | | |
| Yes | 84 | 56 | 64 | 61 | 74 | 21 | 59 | 38 | 56 |
| No | 16 | 44 | 36 | 39 | 26 | 79 | 41 | 62 | 44 |
| Total | 45 | 48 | 50 | 44 | 31 | 47 | 46 | 47 | 358 |

During the lessons, online zoom, google meet, Facebook live app of the institution and YouTube are used by schools in the Dhaka division. But in the madrasah, Dhaka, Chattogram, Rajshahi and Barisal divisions they use the institute's zoom, live Facebook and app, the Sylhet division uses google meet and the Mymensingh division uses YouTube to conduct online classes for students.

Table 3.20 type of App used in the online class (Multiple Ans.)

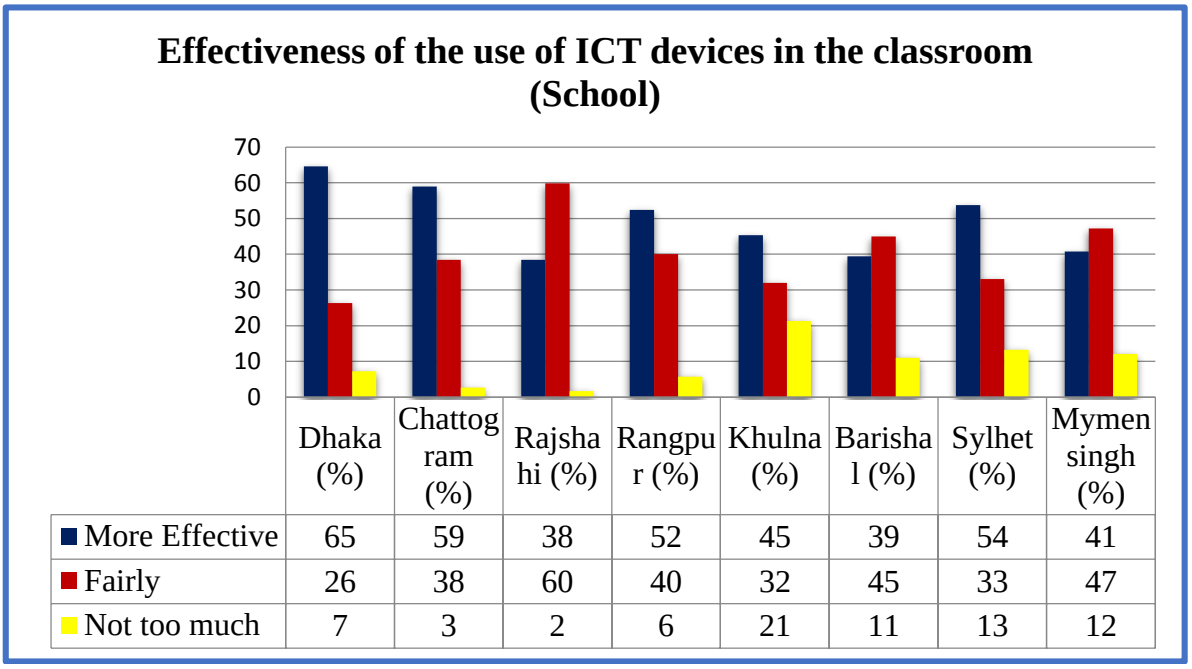
| | | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
|---|---|---|---|---|---|---|---|---|---|
| Zoom | School | 87% | 73% | 33% | 13% | 60% | 73% | 33% | 33% |
| | Madrasah | 70% | 70% | 70% | 20% | 0% | 70% | 30% | 50% |
| Google Meet | School | 60% | 27% | 7% | 0% | 13% | 7% | 60% | 13% |
| | Madrasah | 0% | 20% | 0% | 0% | 0% | 10% | 70% | 20% |
| Facebook Live | School | 80% | 47% | 80% | 87% | 87% | 60% | 73% | 73% |
| | Madrasah | 70% | 40% | 70% | 50% | 20% | 90% | 20% | 60% |
| App (software) of the Institution | School | 27% | 0% | 7% | 0% | 7% | 13% | 0% | 7% |
| | Madrasah | 0% | 0% | 60% | 0% | 0% | 0% | 0% | 10% |
| YouTube | School | 33% | 0% | 20% | 7% | 13% | 0% | 0% | 20% |
| | Madrasah | 0% | 0% | 0% | 7% | 0% | 0% | 0% | 20% |

During Covid-19 Dhaka division school and Madrasah students are getting the benefits of online classes. But in Barisal and Chattogram division students are not so much benefited.

Table 3.21 Description of benefits of online class during COVID-19

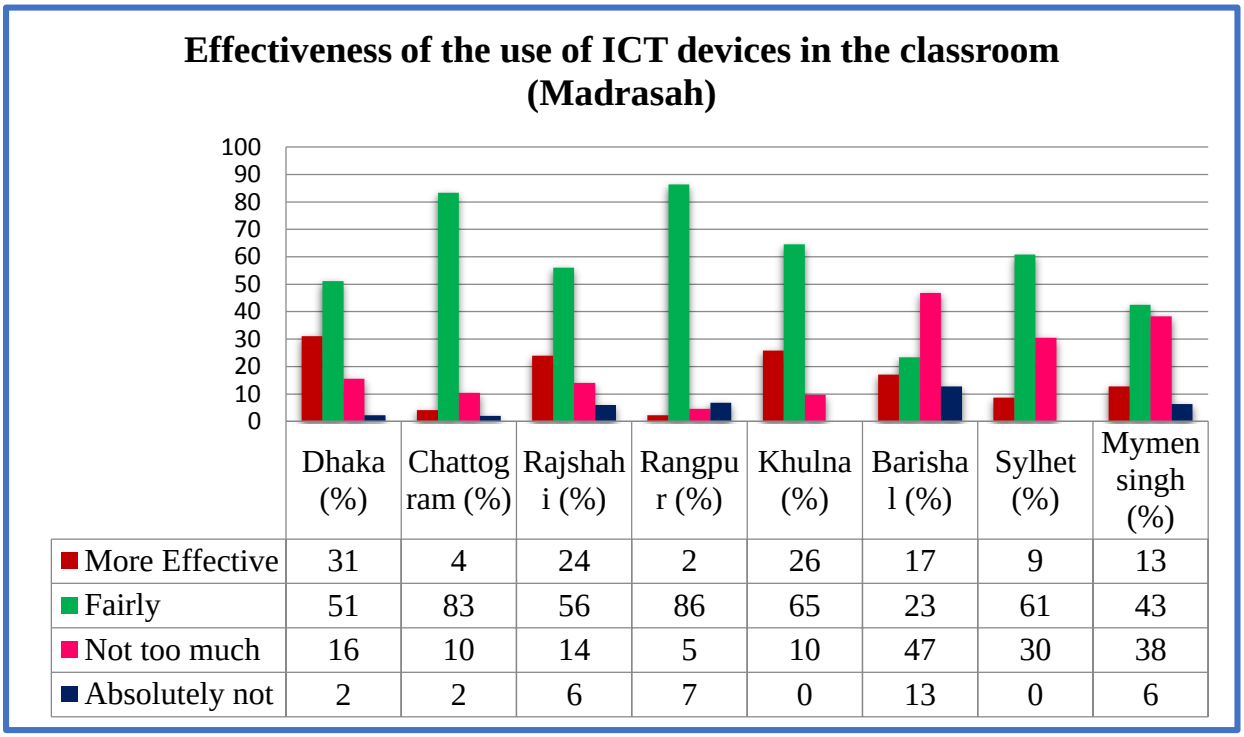
| Conduction of Online classes during Covid-19 or other purposes | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh | Total |
| Yes | 98 | 81 | 92 | 86 | 95 | 87 | 90 | 94 | 90 |
| No | 2 | 19 | 8 | 14 | 5 | 13 | 10 | 6 | 10 |
| Total | 110 | 112 | 117 | 105 | 75 | 109 | 106 | 108 | 842 |
| Conduction of Online classes during Covid-19 or other purposes | | | | | | | | | |
| Yes | 84 | 56 | 64 | 61 | 74 | 21 | 59 | 38 | 56 |
| No | 16 | 44 | 36 | 39 | 26 | 79 | 41 | 62 | 44 |
| Total | 45 | 48 | 50 | 44 | 31 | 47 | 46 | 47 | 358 |

ICT devices are 65% more effective in Dhaka division, 60% fairly in Rajshahi division and 21% not too much effective in Khulna division school's classroom. Moreover, in Madrasah classroom, ICT devices are 31% more effective in Dhaka division, 86% fairly in Rangpur division, 47% not too much in Barisal division and 13% absolutely not in Barisal division.




| | Dhaka (%) | Chattogram (%) | Rajshahi (%) | Rangpur (%) | Khulna (%) | Barisal (%) | Sylhet (%) | Mymensingh (%) |
|---|---|---|---|---|---|---|---|---|
| More Effective | 65 | 59 | 38 | 52 | 45 | 39 | 54 | 41 |
| Fairly | 26 | 38 | 60 | 40 | 32 | 45 | 33 | 47 |
| Not too much | 7 | 3 | 2 | 6 | 21 | 11 | 13 | 12 |

Figure 3.17 Effectiveness of use of ICT device in the classroom (School's student learning)




| | Dhaka (%) | Chattogram (%) | Rajshahi (%) | Rangpur (%) | Khulna (%) | Barishal (%) | Sylhet (%) | Mymensingh (%) |
|---|---|---|---|---|---|---|---|---|
| More Effective | 31 | 4 | 24 | 2 | 26 | 17 | 9 | 13 |
| Fairly | 51 | 83 | 56 | 86 | 65 | 23 | 61 | 43 |
| Not too much | 16 | 10 | 14 | 5 | 10 | 47 | 30 | 38 |
| Absolutely not | 2 | 2 | 6 | 7 | 0 | 13 | 0 | 6 |

Figure 3.18 Effectiveness of use of ICT device in the classroom (Madrasah's student learning)

### *3.2.4. Objective 4: To unfold challenges and identify a way forward of using ICT devices in teaching-learning at the secondary level*

#### *3.2.4.1. Challenges*

School students are facing many problems in the use of ICT devices in their educational institutions. Rajshahi division faces 100% load shedding while classes are running. In Khulna division there is not having adequate multimedia classroom (87%). Laptops and projectors are inadequate in Barisal division (93%). The number of teachers trained in creating digital content is not enough and lack of sincerity of teachers in Rangpur division (100%). Maintenance of laptops, projectors and modems are not enough in Sylhet division (80%). There is lack of supplied quality laptops, projectors and modems in Mymensingh division (80%) and no internet to the computer in Sylhet division (73%). Furthermore, Madrasah students also encounter many problems when using ICT equipment in their educational institutions. The Chittagong, Khulna, Barisal, Sylhet and Mymensingh divisions are subject to a 70% fee reduction during class. There is no adequate multimedia room in the Dhaka, Rajshahi and Khulna divisions (70%). Laptops and projectors are inadequate in the Sylhet and Mymensingh division (70%). The number of teachers trained in digital content creation is not enough and the lack of sincerity of teachers in the Dhaka and Rajshahi divisions (70%). Maintenance of laptops, projectors and modems is not sufficient in the Sylhet division (70%). There is a lack of quality laptops, projectors and modems supplied in the Barisal division (60%) and no Internet connection on computers in the Mymensingh division (60%).

There are some external problems facing by school's teacher. In Barisal division 100% inadequate infrastructure of ICT, 67% lack of adequate resources in Rangpur division, 88% lack of internet connection in Sylhet division. Negative attitudes of teacher towards new technogy are found 31% in Dhaka division. 81% Sylhet division teacher are said that no enough arrangement to solve various problem of ICT devices. Teachers of Chattogram division face 81% inadequate ICT facility (equipment) in their classroom. Moreover, madrasah teachers of Dhaka, Khulna, Barisal, Sylhet & mymensingh division are facing 100% inadequate infrastructure of ICT. 100% lack of adequate resources in Dhaka and Sylhet division, no internet connection in Barisal, Sylhet and Mymensingh division. attitudes of teacher towards new technogy are found 50% in Dhaka division. In Sylhet and Myensingh division teachers don't get proper arrangement to solve various problems of ICT devices. Teachers of Dhaka and Mymensingh divisions face 100% inadequate ICT facility (equipment) in their classroom.

Table 3.22 Problems facing in the use of ICT devices in the educational Institutions (evidence from students)

| Problems | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
|---|---|---|---|---|---|---|---|---|
| Evidence from school's student | | | | | | | | |
| Load shedding of electricity | 13% | 93% | 100% | 0% | 73% | 93% | 47% | 73% |
| Lack of adequate multimedia classrooms | 47% | 60% | 80% | 20% | 87% | 80% | 53% | 60% |
| Laptops and projectors are inadequate compared to the Institution | 33% | 33% | 53% | 60% | 47% | 93% | 27% | 67% |
| The number of teachers trained in creating digital content is not enough | 53% | 20% | 73% | 100% | 67% | 60% | 93% | 27% |
| Lack of sincerity in increasing the number of trained teachers in the institution | 7% | 13% | 47% | 100% | 7% | 40% | 7% | 47% |
| Lack of maintenance of laptops, projectors and modems | 20% | 7% | 0% | 27% | 20% | 40% | 80% | 20% |
| Lack of supplied quality laptops, projectors and modems | 27% | 20% | 33% | 13% | 20% | 47% | 60% | 80% |
| No internet connection to the computer | 13% | 13% | 27% | 20% | 20% | 67% | 73% | 60% |
| Evidence from Madrasah's student | | | | | | | | |
| Load shedding of electricity | 20% | 70% | 20% | 0% | 70% | 70% | 70% | 70% |
| Lack of adequate multimedia classrooms | 70% | 60% | 70% | 20% | 70% | 50% | 10% | 60% |
| Laptops and projectors are inadequate compared to the Institution | 60% | 30% | 10% | 60% | 40% | 60% | 70% | 70% |
| The number of teachers trained in creating digital content is not enough | 70% | 20% | 70% | 40% | 70% | 20% | 40% | 20% |
| Lack of sincerity in increasing the number of trained teachers in the institution | 70% | 10% | 70% | 70% | 50% | 10% | 20% | 40% |
| Lack of maintenance of laptops, projectors and modems | 20% | 10% | 10% | 30% | 20% | 10% | 70% | 20% |
| Lack of supplied quality laptops, projectors and modems | 0% | 20% | 0% | 10% | 50% | 60% | 30% | 30% |
| No internet connection to the computer | 0% | 10% | 0% | 20% | 0% | 40% | 10% | 60% |

Table 3.23 Problems facing in the use of ICT devices in the educational Institutions (evidence from teachers)

| Problems | Division | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
| **Evidence from school's teachers** | | | | | | | | |
| Inadequate infrastructure of ICT | 81% | 88% | 81% | 67% | 27% | 100% | 88% | 73% |
| Lack of adequate resources | 63% | 53% | 50% | 67% | 5% | 47% | 63% | 53% |
| Lack of internet connection in school | 38% | 47% | 19% | 33% | 32% | 47% | 88% | 40% |
| Negative attitude of teachers towards new technology | 31% | 12% | 6% | 13% | 23% | 0% | 19% | 20% |
| There is no enough arrangement to solve various problems of ICT devices | 63% | 59% | 69% | 60% | 32% | 60% | 81% | 67% |
| Lack of adequate ICT facility (equipment) in the classroom | 63% | 82% | 50% | 47% | 27% | 67% | 0% | 47% |
| **Evidence from Madrasah's teachers** | | | | | | | | |
| Inadequate infrastructure of ICT | 100% | 75% | 75% | 60% | 100% | 100% | 100% | 100% |
| Lack of adequate resources | 100% | 75% | 25% | 80% | 40% | 0% | 100% | 50% |
| Lack of internet connection in school | 50% | 25% | 75% | 80% | 40% | 100% | 100% | 100% |
| Negative attitude of teachers towards new technology | 50% | 0% | 0% | 0% | 20% | 0% | 25% | 0% |
| There is no enough arrangement to solve various problems of ICT devices | 75% | 0% | 50% | 20% | 80% | 20% | 100% | 100% |
| Lack of adequate ICT facility (equipment) in the classroom | 100% | 50% | 0% | 20% | 60% | 60% | 0% | 100% |

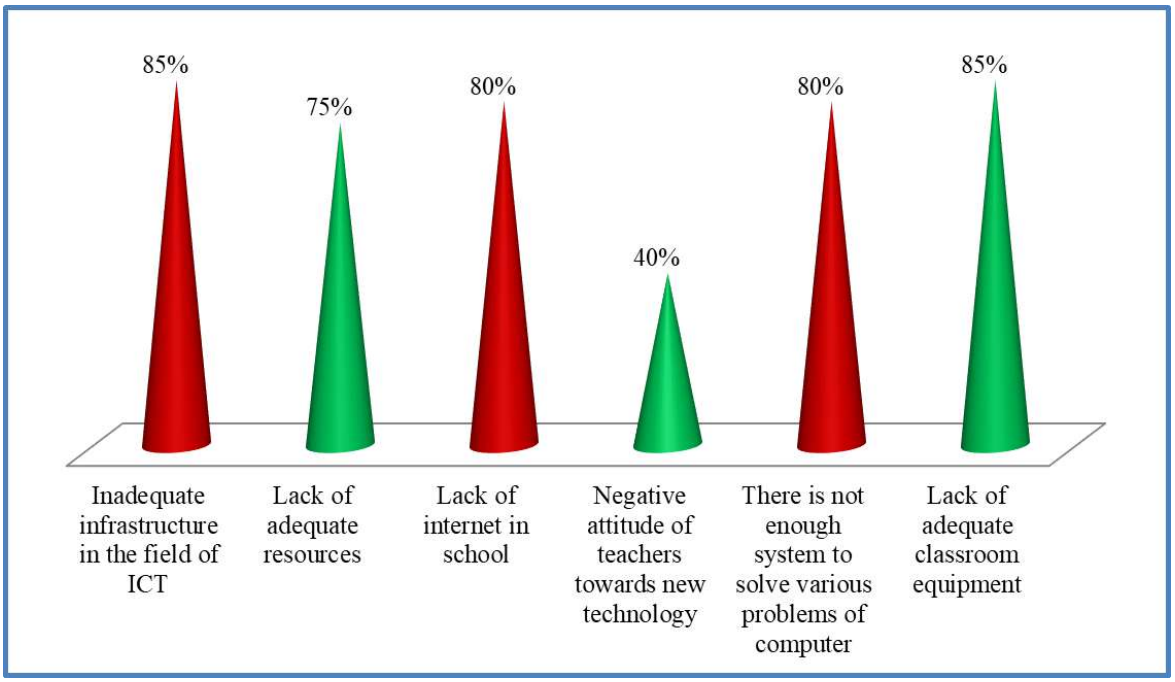



Figure 3.19 Main barriers that teacher faces during online classes

### *3.2.4.2. Suggestion to improve educational Institution's using ICT*

Table 3.24 Recommendation of the students on the improvement of using ICT devices in the educational Institution (Multiple Ans.)

| Recommendation or Suggestions | Division | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
| **Suggestions by School's Students** | | | | | | | | |
| 24-hour power supply | 20% | 40% | 100% | 13% | 80% | 80% | 47% | 87% |
| Arrangement of adequate multimedia classroom | 47% | 33% | 100% | 87% | 87% | 93% | 53% | 80% |
| Adequate laptop and projector supply | 27% | 87% | 80% | 80% | 47% | 93% | 53% | 73% |
| Providing adequate training to teachers in creating digital content | 73% | 27% | 100% | 93% | 60% | 87% | 33% | 33% |
| Inform the internal management of the institution regarding the benefits of multimedia class | 0% | 7% | 60% | 80% | 33% | 67% | 47% | 47% |
| Necessary maintenance of laptops, projectors and modems | 7% | 0% | 53% | 87% | 47% | 40% | 53% | 60% |
| Supply of high-quality laptops, projectors and modems | 20% | 13% | 47% | 40% | 47% | 60% | 20% | 87% |
| Provide broadband internet connection | 27% | 20% | 40% | 7% | 40% | 73% | 27% | 67% |
| Make it compulsory to conduct classes using ICT | 13% | 13% | 27% | 7% | 60% | 47% | 7% | 33% |
| **Suggestions by Madrasah's Students** | | | | | | | | |
| 24-hour power supply | 0% | 40% | 70% | 13% | 70% | 70% | 80% | 87% |
| Arrangement of adequate multimedia classroom | 40% | 30% | 80% | 87% | 70% | 80% | 20% | 80% |
| Adequate laptop and projector supply | 70% | 60% | 0% | 80% | 70% | 40% | 70% | 73% |
| Providing adequate training to teachers in creating digital content | 60% | 20% | 80% | 93% | 70% | 20% | 50% | 33% |
| Inform the internal management of the institution regading the benefits of multimedia class | 70% | 10% | 70% | 80% | 70% | 10% | 80% | 47% |
| Necessary maintenance of laptops, projectors and modems | 30% | 0% | 50% | 87% | 50% | 50% | 30% | 60% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Supply of high quality laptops, projectors and modems | 0% | 13% | 10% | 40% | 70% | 80% | 60% | 87% |
| Provide broadband internet connection | 0% | 20% | 50% | 7% | 60% | 30% | 50% | 67% |
| Make it compulsory to conduct classes using ICT | 0% | 20% | 70% | 7% | 80% | 60% | 0% | 33% |

Table 3.25 Recommendation of the students on the improvement of using ICT devices in the educational Institution (Multiple Ans.)

| Recommendation or Suggestions | Division | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dhaka | Chattogram | Rajshahi | Rangpur | Khulna | Barisal | Sylhet | Mymensingh |
| **Suggestions from School's Teachers** | | | | | | | | |
| Providing adequate ICT infrastructure in the institutions | 94% | 100% | 88% | 80% | 27% | 80% | 75% | 67% |
| Arrangenement of unitrumpted Internet connection at school level | 56% | 76% | 31% | 67% | 32% | 53% | 81% | 73% |
| Creating a positive attitude of teachers towards multimedia classrooms | 69% | 53% | 13% | 67% | 36% | 33% | 31% | 40% |
| Creating a positive attitude of school authorities towards multimedia classrooms | 50% | 35% | 13% | 33% | 32% | 33% | 56% | 53% |
| Arrange for further training of teachers on multimedia classrooms | 69% | 88% | 81% | 87% | 27% | 47% | 69% | 67% |
| Adequate maintenance Facilities | 69% | 59% | 19% | 60% | 27% | 27% | 25% | 47% |
| arrangement for easy solutions to various problems related to ICT devices | 81% | 65% | 75% | 60% | 27% | 47% | 38% | 47% |
| Establish permanent multimedia classrooms | 69% | 76% | 63% | 53% | 41% | 47% | 44% | 80% |
| Convert every class into an MMC classroom | 56% | 53% | 75% | 40% | 18% | 0% | 19% | 67% |
| Ensuring adequate resources | 0% | 59% | 50% | 27% | 27% | 7% | 0% | 67% |
| **Suggestions from Madrasah's Teachers** | | | | | | | | |
| Providing adequate ICT infrastructure in the institutions | 100% | 50% | 100% | 100% | 60% | 80% | 100% | 75% |
| Arrangenement of unitrumpted Internet connection at school level | 100% | 50% | 100% | 80% | 80% | 80% | 50% | 75% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Creating a positive attitude of teachers towards multimedia classrooms | 75% | 50% | 75% | 60% | 100% | 40% | 75% | 75% |
| Creating a positive attitude of school authorities towards multimedia classrooms | 25% | 0% | 50% | 100% | 100% | 0% | 75% | 50% |
| Arrange for further training of teachers on multimedia classrooms | 75% | 75% | 0% | 40% | 80% | 20% | 75% | 100% |
| Adequate maintenance Facilities | 25% | 50% | 0% | 40% | 80% | 40% | 50% | 50% |
| arrangement for easy solutions to various problems related to ICT devices | 75% | 50% | 0% | 40% | 100% | 60% | 75% | 100% |
| Establish permanent multimedia classrooms | 100% | 75% | 0% | 60% | 80% | 20% | 50% | 100% |
| Convert every class into an MMC classroom | 100% | 75% | 0% | 100% | 80% | 0% | 50% | 75% |
| Ensuring adequate resources | 100% | 0% | 0% | 40% | 0% | 20% | 0% | 75% |

Table 3.26 Ways to remove barriers to the use of ICT devices (Multiple Ans.)

| Category | | | |
|---|---|---|---|
| Adequate infrastructure in the field of ICT | Amount | (%) | |
| Having Internet connection at school level | 15 | 75% | |
| Creating a positive attitude of teachers towards multimedia classrooms | 18 | 90% | |
| Creating a positive attitude of school authorities towards multimedia classrooms | 18 | 90% | |
| Arrange for further training of teachers on multimedia classrooms | 14 | 70% | |
| Adequate maintenance | 19 | 95% | |
| Solving various problems related to computer usage | 13 | 65% | |
| Establishment of permanent multimedia classroom | 14 | 70% | |
| Convert each class into MMC classroom | 14 | 70% | |
| Ensuring adequate resources | 12 | 60% | |

# Chapter 4. Major Findings, Challenges and Prospective

## *4.1. Introduction*

As per study design, a total of 1200 students from secondary schools (842 students from schools and 358 students from madrasahs) were interviewed for this study. At the same time a total number of 132 school teachers and 35 madrasah teachers also were interviewed from the 32 randomly selected upazialla under 16 districts within the scope to eight administrative division. Critical analysis and interpretation of the collected data from the students, teachers and officials both from school and madrasahs in the prior chapter have provided the following major findings.

## *4.2. Major Findings*

9. 100% of the secondary schools from Dhaka, Chattogram, Rajshahi, Sylhet and Mymensingh have laptop devices where there is a lack of having laptop devices in madrasah institute except Khulna. An observational study shows that just 56% of the institute's have laptops, which is an worth noting fact to take into consideration.

10. Despite this, approximately 92% of students attending schools reported that their educational institute makes use of ICT devices in the classroom, whereas 100% of students attending madrasas from Dhaka, Rajshahi, and Sylhet reported that laptops were used in the classroom. Therefore, there is some information variation that has been documented in this research, and access to information about the possession of and use of ICT equipment in educational institutes is not entirely obvious.

11. Mobile smart phone devices are new form of ICT devices almost everywhere in both secondary schools (74%) and madrasahs (75%). The findings also confirmed by the officials (95%). Therefore, the government, policy makers, or high-stake decision-makers may take the initiative to launch mobile learning (M-Learning) platform rather of the more conventional form of online education (E-Learning).

12. Regarding the effectiveness of the use of ICT, while 82.9% students from school said that ICT device used in their classroom where, around 56% respondent from madrasah agreed with this question. Interestingly, general

science subject (68%) was given taught in the classroom using ICT device followed by the ICT subjects (61%). Surprisingly, physics (33%) was rarely taught by using ICT device while most vulnerable subject is religion (32%). One possible explanation is, religious teachers are much trained in the ICT program.

13. However, on the whole, 96% of students from schools believe that they are benefitted by using ICT device at the institution, and 78% of students believe that it is very important. In contrast, 86% of students from madrasah believe the same thing, and 76% of them take into account as very important. Therefore, the use of ICT in secondary schools is successful and contributes to improved teaching method.

14. Qualification (85%) and positive attitude towards ICT and innovation (80%) are the most important factor of selecting a teacher to send them for ICT training and report showed that 75% of the teachers are ICT trained and remaining 25% have no ICT training. Based on the age and experience the other two factors can be minimizing. Youngs should give more priority as they have the potential to explore emerging knowledge.

15. ICT enhance the student's learning capability. Overall, 55% students said there were enough improvement of teaching method based on the ICT equipped classes and 40% of the students think that there is absolutely student-friendly student learning.

16. Majority 96% of the teachers from schools think that their students are motivated and attentive for managing the classrooms through ICT devices, and 83% of the madrasah teachers are think so.

## *4.3. Major Challenges*

Although there is a great deal of potential and availability of information and communication technology (ICT) equipment given at the educational institute, there are no obstacles that go beyond those capabilities. The following are some of the most significant issues that the teacher faces:

6. Load shedding is a common problem in the Rajshahi division (100%) followed by Chattogram and Barisal (93%).

7. Compared to other division Rajshahi has Lack of adequate multimedia classrooms in both schools (80%) and madrasahs (70%). Same situations are in Khulna's (87%) and Barisal's (80%) schools. Compared to institute, Barisal's school have been suffering inadequate laptops and projectors (93%).

8. While only 13% students from Dhaka division think that they have no internet connection to the computer, surprisingly, madrasah students from Dhaka and Rajshahi division have been suffering lack of supplied quality laptops, projectors and modems (0%) and lack of supplied quality laptops, projectors and modems (0%).

9. Evidence from the officials reveals that, due to insufficient (70%) multimedia equipment in the classroom, somehow trained teachers are not willing to conduct ICT-based teaching.

10. Overall, it is found that, there is inadequate infrastructure of ICT (85%), lack of adequate resources (75%), lack of internet connection in school (80%), negative attitude of teachers towards new technology (40%), and there is no enough arrangement to solve various problems of ICT devices (80%).

## *4.4. Opinions form the students and teachers to enhance ICT use in the educational institute*

The findings of this study revel a number of opinions from both students and teachers to enhance ICT use in the educational institute which are followings:

### *4.4.1. Opinions from the students of school*

→ Need 24-hour power supply, arrangement of adequate multimedia classroom , providing adequate training to teachers in creating digital content in Rajshahi division
→ Adequate laptop and projectors need to supply in Barisal division
→ Inform the internal management of the institution regarding the benefits of multimedia class, necessary maintenance of laptops, projectors and modems in Rangpur division
→ In Mymensingh division, there is needed supply of high-quality laptops, projectors and modems.
→ Need to provide broadband internet connection in Barisal division
→ Make it compulsory to conduct classes using ICT in Khulna division

### *4.4.2. Opinions from the students of madrasah*

→ Need 24-hour power supply, arrangement of adequate multimedia classroom in Mymensingh division
→ Need to provide adequate training to teachers in creating digital content, adequate laptop and projector supply, inform the internal management of the institution regarding the benefits of multimedia class, necessary maintenance of laptops, projectors and modems in Rangpur division
→ In Khulna division, there is needed supply of high-quality laptops, projectors and modems, make it compulsory to conduct classes using ICT in their classroom
→ Need to provide broadband internet connection in Mymensingh division

### *4.4.3. Opinions from the teachers of secondary schools*

→ Providing adequate ICT infrastructure in the institutions and arrange for further training of teachers on multimedia classrooms in Chattogram division
→ Arrangement of instrument for internet connection at school level and creating a positive attitude of school authorities towards multimedia classrooms in Sylhet division
→ Creating a positive attitude of teachers towards multimedia classrooms, adequate maintenance facilities and arrangement for easy solutions to various problems related to ICT devices in Dhaka division
→ Establish permanent multimedia classroom and ensuring adequate resources in Mymensingh division
→ Convert every class into an MMC classroom in Rajshahi division

### *4.4.4. Opinions from the teachers of madrasahs*

→ Providing adequate ICT infrastructure in Dhaka, Rajshahi, Rangpur and Sylhet division
→ Arrangement of instruments for internet connection at school level in Dhaka and Rajshahi division
→ Creating a positive attitude of teachers towards multimedia classrooms and adequate maintenance facilities is needed in Khulna division
→ Creating a positive attitude of school authorities towards multimedia classrooms in Rangpur and Khulna division
→ Arrange for further training of teachers on multimedia classrooms in Mymensingh division
→ Arrangement for easy solutions to various problems related to ICT devices in Khulna and Mymensingh division
→ Establish permanent multimedia classrooms in Dhaka and Mymensingh division

→ Convert every class into an MMC classroom Dhaka and Rangpur division
→ Ensuring adequate resources in Dhaka division

Government as well as high stake decision makers needs to take some necessary steps to remove barriers to the use of ICT devices. There needs adequate infrastructure in the field of ICT and having the internet connection at school level. Through training positive attitude can create by teachers and authorities towards multimedia classroom. There need to arrange for further training of teachers on multimedia classrooms. Solving various problems related to computer usage and adequate maintenance are needed for students to use the ICT devices. In every school, there should establish permanent multimedia classroom. Government needs to ensure adequate resources for ICT and convert each class into MMC classroom.

# Chapter 5. Recommendations, Limitations, and Conclusion

## *5.1. Recommendations*

In the information age, the concept of "technology" has emerged as an essential concern in a variety of disciplines, one of which is education. This is due to the fact that in most nations, technology has evolved into the expressway for the movement of information. The incorporation of technology in today's society has resulted in societal advances and transformations, which in turn have completely altered the ways in which people think, work, and live. As a result of this, schools and other types of educational institutions that are tasked with preparing students to function effectively in "a knowledge society" need to give serious consideration to incorporating ICT instruction into the curriculum that they provide.

Digital literacy in education refers, in general, to a technology-based teaching and learning activities that is directly related to the application of learning technologies in educational institutions such as schools. The topic of information and communications technology (ICT) integration in schools, particularly in the classroom, is essential since learners are already acquainted with technology and they will enhance learning in an atmosphere that is cantered on technology. This is due to the fact that the integration of technology into educational settings makes a significant contribution to the field of pedagogy. More specifically, the application of information and communications technology (ICT) will facilitate efficient learning with the assistance and support of various ICT elements and components. In addition to computer hardware and software, ICT will also encompass digital content that can be interacted with, various forms of communication technology, media like radio, television, and smart phones, online databases of information and discussion boards, content-management systems, and administrative software. Such activities will also include the digitization for skill enhancement, and the initiation of new learning for better teaching platform. Based on the results described in the previous chapter and above discussion, this study has some specific recommendation which are followings:

→ **Training of teachers on ICT** (i.e., digital literacy, advance PowerPoint content creating training, digital content, virtual learning): Training in information and communication technology should be required of all secondary school instructors, including madrasah teachers. More specifically, this study recommends to provide the young teachers with greater interest to ICT. Some of the teachers who teach standard

subjects like Bengali and religion should have training in the use of information and communications technology (ICT) in the classroom so that they can make their lessons more interacting and informative for their students, particularly students from impoverished backgrounds, who may be less likely to attend school otherwise.

→ **Student's Training on ICT** (i.e., digital literacy, virtual learning): The use of information and communications technology (ICT) technologies should be taught to students so that education may become more interesting, motivating, and inventive. They are required to get an understanding of the most significant emerging technologies as well as the expanding movement toward the use of ICT into educational settings. This is the best period to learn how and where to digitally evaluate learners' knowledge and comprehension on a real-time basis. Importantly, students should get a fresh viewpoint on ICT tools, discover fresh methods and best practices for integrating ICT into learning, and engage in the exchange of best practices and the sharing of learning experiences with others.

→ **Developing learning management systems (LMS):** The Learning Management System, sometimes known as LMS, is becoming an increasingly common method used throughout the teaching and learning process. Schools and colleges may find answers to their challenges via the use of learning and communication technologies. LMS is able to manage activities related to teaching and learning regardless of the constraints of time or location. The Learning Management System (LMS) offers an automated system for the delivery of course material and the monitoring of the learner program. Students are able to see multimedia lectures, chat with their lecturers and one other in teaching forums, download course material, participate in online quizzes, and submit their homework and assignments via the use of a LMS. By developing LMS, education systems will be able to decrease the disparity that exists between the facilities of urban and rural institutions.

→ **Focus on blended learning:** Physical or virtual, online, or digital learning are all examples of blended learning, which refers to the mixing of these multiple types of delivery medium or instructional techniques. While the University Grant Commission

(UGC) has produced a policy for blended learning in higher education, which is a mix of online and physical education techniques, there is a deficiency or hole in the implementation of a policy for blended learning in secondary education systems. Students and teachers are able to interact on both a local and a global degree as a result of this method. In addition to this, the students will save money by using this technique. By the way, in order to properly train and strengthen educators like instructors and teachers, it will first be necessary to comprehend the various competence levels.

→ **Blogs and social networks:** In today's schools, particularly those at the university level, blogs are used as a kind of technological assistance in the teaching and learning processes. Students are prompted to engage in reflective writing practices through the usage of blogs as part of their education in information and communication technologies (ICT). Learners were forced to take accountability for and exercise control over their own individual learning experiences when they participated in forms of the ICT classes that included blog components. The important consequences are that people are encouraged to develop their computer abilities via the use of blogging and Blogs make it possible for us to grow in self-assurance by enabling us to share our expertise with others from all around the globe.

→ **Ensuring Power (Electricity):** Power supply is a far more important factor in determining the success of any inventive initiative. It is practically proof that, power supply being one of the most critical hurdles in the ICT-based education systems, given the outcomes of this research that were presented in the chapter before this one. Conducting virtual classes online requires reliance on technology and the possession of the appropriate digital tools, both of which need consistent and high-quality power in order to function properly. This is true not just for educational institutions but also for all sectors about uncertainty of power. By using uninterruptible power supply (UPS), one may circumvent these issues and prevent further complications. During the hours when classes are in session, there should be more access to power in educational institutions. Thus, education ministry and energy regulatory commission can work together to solve these issues.

→ **Self-awareness and effective utilization of ICT devices:** Students, instructors, and administrators all need to practice self-awareness about their use of information and communications technology (ICT) and be maintenance with the devices. Technology that has been installed need continual maintenance and support in order to stay working for an extended period of time. As a result of the increased presence of technology in the educational environment, and schools have been required to devise systems to support it, as well as to establish support positions and locate individuals to fill them. The government may choose to make investments at any moment, but all stakeholders have a responsibility to ensure that ICT is properly maintained in order to ensure its long-term or sustainable usage in educational institutions. The results of the observational study allow for the generalization of this conclusion.

## *5.2. Limitations*

Availability of secondary data has been a challenge during the entire research, as the local information system is hardly organized and updated systematically. However, cross-checking was done to address the dissimilarity with the data triangulation process.

Due to the limited movement capacity for the spreading of infectious diseases of coronavirus all over the country, the study could cover a limited number of official's interviews and relies on the information collected from the interviewees, secondary data, and information gathered from the relevant stakeholders anonymously.

Unawareness/Unwillingness to provide information regarding ICT use, financial and ICT management. The report has been prepared based on the quantitative/qualitative information provided by the stakeholders/ participants/ respondents.

## *5.3. Conclusion*

In general, the majority of instructors and students in secondary schools as well as madrasahs have a solid grounding in fundamental ICT skills because of advancement of IT in the recent decades, as well as applications of the internet for gaining access to information, exchanging information, and communicating. However, they still lack certain capabilities in advanced information and communications technology skills such as blended learning, LMS application design and deployment, blogging, and other areas. Therefore, it is imperative that educators participate in trainings specifically oriented toward the development of these abilities. However, it is important for students to exercise caution about the combination of information and communications technology tools that they use and the goals that they want to accomplish with those tools. Utilizing Social medias for learning purposes has the potential to be an effective method for improving academic success. This is mostly because to the popularity of social media among students, which continues to rise year after year.

In addition, the expansion of the usage of information and communications technology, such as blogging, creating videos content, teleconference, and online seminars, has supported the diversity and quality of learning both on and off campus. Therefore, a teacher may make the learning process more engaging and enlightening for students by using a variety of technology devices, as was discussed earlier. If teachers make intelligent use of these technologies, education will become more fascinating, which in turn will increase students' levels of motivation, commitment, and engagement. Teachers have a responsibility to make certain that the information and communications technology (ICT) curriculum includes instruction on how to read and understand technology in order to adequately prepare pupils for life in the digital age. The evaluation of the data, which focused on the availability and utilization of information and communication technology (ICT) equipment at participating institutions, ICT training for teachers, and the influence of ICT on teaching and learning in schools, presents a picture that has a lot of promise.

Last but not least, the study also brought to light the importance of having an information and communications technology (ICT) program in schools, as it was found that teachers believe that in order to make the most of the available ICT devices, they require training and guidelines from their schools in the form of an information and communications technology awareness program. Students considered their instructors' use of ICT was the least innovative except general science and ICT instructors, and they wanted their teachers to

utilize ICT to produce real teaching and learning classroom environments. Particular emphasis should be focused on the training of teachers and the desire of teachers to be creative in areas where the successful use of information and communication technology in secondary schools is still a long way behind education systems in other countries.

# Annexures

Annex-1

## KII অংশগ্রহণকারী জেলা কর্মকর্তাদের তালিকা

| ক্রমিক | নাম | পদবি | জেলা | মোবাইল নাম্বার |
|---|---|---|---|---|
| ১ | এস এম মোসলেম উদ্দিন | জেলা শিক্ষা অফিসার | পাবনা | ০১৭০৮৫৭৩৮০৬ |
| ২ | রেবেকা জাহান | জেলা শিক্ষা অফিসার | মানিকগঞ্জ | ০১৭১৪১০০৬৮৯ |
| ৩ | মুহাম্মদ ফরিদুল আলম হোসাইনী | জেলা শিক্ষা অফিসার | চট্টগ্রাম | ০১৮১৯৬২৭৮২৩ |
| ৪ | মোঃ জাহাঙ্গীর আলম | জেলা শিক্ষা অফিসার | সুনামগঞ্জ | ০১৯১২১০৫৪৪১ |
| ৫ | মোঃ রফিকুল ইসলাম | জেলা শিক্ষা অফিসার | ময়মনসিংহ | ০১৭১৪৩০০৬১৩ |

## KII অংশগ্রহণকারী উপজেলা কর্মকর্তাদের তালিকা

| ক্রমিক | নাম | পদবি | উপজেলা/ জেলা | মোবাইল নাম্বার |
|---|---|---|---|---|
| ৬ | ফারুক আহমেদ | উপজেলা শিক্ষা অফিসার | ভেড়ামারা/ কুষ্টিয়া | ০১৭১২১৯৫৭১৪ |
| ৭ | মোঃ একরামুল হক | উপজেলা শিক্ষা অফিসার | সদর/ কুষ্টিয়া | ০১৭১৮৬৫৮০১৪ |
| ৮ | মোঃ হাফিজুর রহমান | উপজেলা মাধ্যমিক শিক্ষা অফিসার | পাবনা সদর/ পাবনা | ০১৭১১১১১৮৩৮ |
| ৯ | মোঃ মনিরুজ্জামান খান | সহকারী উপজেলা মাধ্যমিক শিক্ষা অফিসার | সিংগাইর/ মানিকগঞ্জ | ০১৮১৪৯৬৮১৭১ |
| ১০ | মোঃ সেলিম আক্তার | উপজেলা মাধ্যমিক শিক্ষা অফিসার | ইশ্বরদী/ পাবনা | ০১৭১৮২১৯৩৬৪ |
| ১১ | জনাবা নার্গিস সুলতানা | উপজেলা শিক্ষা অফিসার | সদর/ মানিকগঞ্জ | ০১৭১২৫০১৩৮২ |
| ১২ | নাদির আহমেদ | উপজেলা শিক্ষা অফিসার | কাপ্তাই/ রাঙ্গামাটি | ০১৮৭৪০৪০৪০০ |
| ১৩ | অশোক রঞ্জন পুরকায়স্থ | উপজেলা শিক্ষা অফিসার | সদর/ সুনামগঞ্জ | ০১৭১১০৪৭৬০২ |
| ১৪ | মোঃ হুমায়ুন কবির | উপজেলা মাধ্যমিক শিক্ষা অফিসার | সদর/ পটুয়াখালী | ০১৩০১২২১৬৪৪ |
| ১৫ | মোঃ গোলাম মোস্তোফা | উপজেলা মাধ্যমিক শিক্ষা অফিসার | গলাচিপা/ পটুয়াখালী | ০১৭১৮০৪১৪৫২ |
| ১৬ | মোস্তাফিজুর রহমান ভুঁইয়া | উপজেলা শিক্ষা অফিসার | সদর/ ময়মনসিংহ | ০১৭১৬২৫৭৮৫৩ |
| ১৭ | মোঃ নজরুল ইসলাম | উপজেলা মাধ্যমিক শিক্ষা অফিসার | ভালুকা/ ময়মনসিংহ | ০১৭১৬৯১৫৩৬১ |
| ১৮ | মোঃ হারুন-অর রশীদ | অধ্যক্ষ | সদর/ কুড়িগ্রাম | ০১৭১৬০৩৫৬৪৭ |
| ১৯ | মোঃ মিজানুর রহমান খন্দকার | প্রধান শিক্ষক | সদর/ কুড়িগ্রাম | ০১৭১৮৯৩৩৭০২ |
| ২০ | মোঃ নুর বখত | প্রধান শিক্ষক | সদর/ কুড়িগ্রাম | ০১৭১৬২৬৩৩১৮ |
| | | | | |


বাংলাদেশ শিক্ষাতথ্য ও পরিসংখ্যান ব্যুরো (ব্যানবেইস)
১, জহির রায়হান রোড (পলাশী-নীলক্ষেত), ঢাকা-১২০৫।
www.banbeis.gov.bd e-mail: info@banbeis.gov.bd
ফোনঃ ০২-৫৫১৫২১৬০