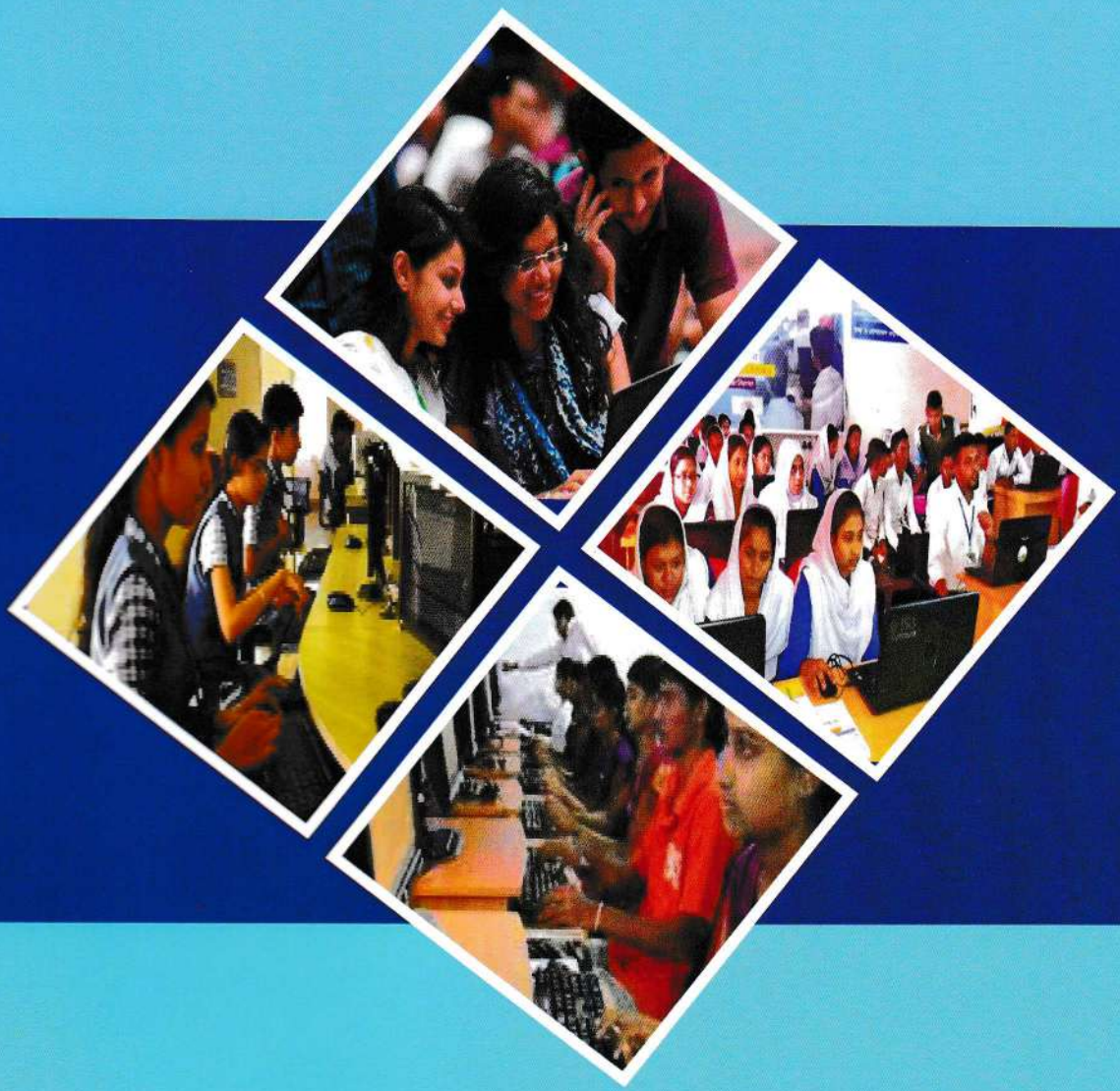
Government of the People's Republic of Bangladesh

Ministry of Education

Secondary and Higher Education Division

"Study on "Integration of ICT Secondary Level Education in Bangladesh"



Bangladesh Bureau of Educational Information and Statistics

(BANBEIS)

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

Study on Integration of ICT in Secondary Level Education in Bangladesh

June 2022

Research Conducted by
Samahar Consultants Limited
House: 817, Road: 04, Baitul Aman Housing Society
Adabor, Mohammadpur, Dhaka 1207

Researcher:
Professor Shamim Ahmed
Dr. Md. Anwar Hossain [1]
Dr. Md. Rahamat Ullah [2]
Dr. Anowarul Kabir [3]

With Assistance from:

Md. Mizanur Rahman[4], Md. Emran Choudhury, Ummey Kulsum, Mir Taj Mira Yeasmin [5] and Field study team of Samahar Consultants Limited

Intellectual property owner:

Bangladesh Bureau of Educational Information and Statistics (BANBEIS)
1 Jahir Raihan Road (Palashi-Nilkhet) Dhaka-1205

[1] Managing Director, Samahar Consultants Limited
[2] Research Coordinator, Samahar Consultants Limited
[3] Researcher, Samahar Consultants Limited
[4] Study Manager, Samahar Consultants Limited
[5] Research Associate, Samahar Consultants Limited

LIST OF CONTENT

Contents

ABBREVIATION

A2I	: Access to Information
ADB	: Asian Development Bank
AUSEO	: Assistant Upazila Secondary Education Officer
BANBEIS	: Bangladesh Bureau of Educational Information and Statistics
CAI	: Computer Assisted Instruction
COVID-19	: Infectious disease caused by the most recently discovered coronavirus *('CO' stands for corona; 'VI' for virus; 'D' for* disease *and '19' the year in which it appeared)*
DCI	: Data Collection Instruments
DEO	: District Education Officer
FGD	: Focus Group Discussion
GOB	: Government of Bangladesh
ICT	: Information Communication Technology
KEDCF	: Korea Economic Development Cooperation Fund
KII	: Key Informant Interview
LQA	: Lot Quality Assurance
LQAS	: Lot Quality Assurance System
PSU	: primary sample units
QCO	: Quality Control Officer
TQI-SEP	: Teaching Quality Improvement in Secondary Education Project
UNESCO	: United Nations Educational Scientific and Cultural Organization
USEO	: Upazila Secondary Education Officer

PREFACE

It is the exclusive responsibility of the Bangladesh Bureau of Educational Information and Statistics (BANBEIS) to gather, compile, and disseminate educational data and statistics. By creating and supplying pertinent information and data, this organization efficiently supports a variety of multifunctional operations in the education sector. This bureau also contributes significantly to the growth of ICT education and training.

Another significant turning point in Bangladesh's educational history has been the use of ICT in education, particularly secondary school. The National Plan of Action's objective of creating a digital Bangladesh by 2021 is being advanced in large part thanks to the Ministry of Education. However, many instructors in Bangladesh's rural areas lack the necessary training and expertise to teach in the digital classroom. Thus, pupils are denied access to high-quality instruction. But teachers' technological skills and aptitude have a big impact on how ICT is used in education. Teachers need to be highly skilled in ICT in order to use and integrate technology in the classroom. ICT integration in education generally refers to a technology-based teaching and learning process that is closely linked to the usage of teaching aids in educational institutions. Students are used to technology and perform better in tech-based environments, which highlights the need of ICT integration in schools, particularly in the classroom. Teachers can respond to the global need for facilities and resources for technology-based teaching and learning in place of conventional teaching methods by integrating ICT. In order to document the current situation and develop a future strategy, BANBEIS runs the research "Integration of ICT in Secondary Level Education at Bangladesh" in 500 educational institutions, with a minimum of 32 Upazilla and representation from every administrative division of Bangladesh.

This research was carried out by Samahar Consultants Limited on behalf of BANBEIS. For this study, 2500 teachers provided a wealth of pertinent information and difficulties, including the proportion of working, non-functional, and underutilized gadgets as well as information on which districts and divisions employ the most ICT equipment. In this regard, I am happy to recognize the honest efforts made by Samahar Consultants Limited to carry out the study.

I believe that the findings of this study will be useful to secondary educational institutions in making ICT decisions in the future.

We would really appreciate any recommendations may have to make this report better.

Habibur Rahman
Director General
BANBEIS

Chapter One

Introduction and background of the research

1.1. Introduction

Bangladesh, as a developing country has brought a significant changes in socio-economic sectors during the last few years. The desire to become a middle-income country has prompted Bangladesh to come up with an updated education policy which will help the country to produce the required skilled workforce. ICT integration in education is the most significant step of this latest education policy, and Government of Bangladesh has stepped up its all out effort to make a successful implementation of ICT in education. Government of Bangladesh, like those in many other developing nations particularly in this region, focused over years on expanding access to education and raising educational attainment rates. Over the last few decades, remarkable progress has been made in these areas. In primary education, for example, the net enrollment ratio has increased to more than 98%, up from 60% in the mid-1980s (as per UNESCO data). Similarly, the adult literacy rate increased from 35% in 1991 to 73% in 2017.

The Bangladeshi government launched an ambitious new national education policy in 2010 encourage participation and enhance learning outcomes by introducing one year of obligatory preschool education and extending compulsory education from grade five to grade eight (the initiative has been delayed). Now the focus has been shifted to improving quality of education, hence introduction of continuous professional devlopment has been emphasized.

While the government has lately built thousands of schools, particularly in rural areas, and invested significant resources in upgrading education, many of the reforms are still in the planning level, delayed by financial issues and insufficient school infrastructure. Overcrowding is common in schools, and teachers are frequently under-qualified. Dropout rates are high, with over 20% of elementary school students failing to graduate in 2016. In 2017, the dropout rate at the lower secondary level was 38 percent, with completely 42 percent of girls dropping out before finishing grade 10, owing to issues such as poverty and child marriage. Knowledge of English is very poor both among the teachers and the students and this is a critical deterrent since only expertise in handling of computer hardware and software is not enough in the application of information technology, the optimum use of the technology also depends on knowledge of English because all the related documents in the website is written in English. Besides, teacher-to-student ratios remain significantly over the statutory aim of 30:1 (42:1 in secondary schools in 2016).

The adoption of ICT in education and particularly in secondary education has marked yet another milestone in Bangladesh's educational history. The Ministry of Education is a key player in advancing this change and realizing the aim of a Digital Bangladesh by 2021 as envisaged in the National Plan of Action. With support from UNESCO and in collaboration with concerned officials from the Ministry of Primary and Mass Education, and other relevant agencies, the Ministry of Education formulated the Master Plan for ICT in Education in

Bangladesh (2012-2021) in 2012 to achieve this transformation by improving the quality of education and making learning more relevant and accessible through technology. The comprehensive review of the Master Plan for ICT in Education (2012-2021) in 2018 was an important initiative to assess progress in the Master Plan's implementation and make necessary adjustments to ensure that learners of all ages and socioeconomic status are not only included, but are also able to actively contribute to Bangladesh's transformation into a knowledge society. The assessment also assured that the Master Plan is in line with the 2030 Agenda for Sustainable Development and the Sustainable Development Goals, and that it contributes to their achievement. *(Progress review report 2019, Master Plan for ICT in Education in Bangladesh, 2012-2021).*

Bangladesh Bureau of Educational Information and Statistics (BANBEIS) is the only government organization responsible for the collection, compilation, and dissemination of educational information and statistics. From the beginning, this institution is successfully contributing to different multidisciplinary development in the education sector through preparing and providing necessary information and statistics. BANBEIS is using modernized ICT to initiate and establish an educational database program for documentation and supplying authentic educational information, which is playing a major role in initiating different projects/programs. In the education sector different international organizations, Development partners particularly those engaged in the activities of education & culture are fully dependent on statistics & information produced by the Bureau. The Bureau has been playing an important role by conducting a computer training course for the teachers, officials, and staffs of govt. and non-govt. organization and implementing ICT initiatives of the government.

In fact, the government has taken resilient initiative to use ICT in Education. For example, the government published 61 million results of public exams over internet, 37.4 million over SMS in 2012, and 63 million results of public exams over internet, 38 million over SMS in 2013. Moreover, last year 2.7 million admission applications were received through SMS. On the other hand, the government introduced Multimedia Classroom at 503 secondary schools in 2012 and 20500 secondary schools in 2013 to ensure implementation of ICT in classrooms. Furthermore, the government organized ICT training for secondary school teachers through the A2I project, TQI project, and other projects.

Access to Information (A2I)

This project is organizing an ICT training program for secondary school teachers. This training program will try to develop the ICT teaching-learning strategies in the classroom, increase the ICT application ability of secondary school teachers and develop teachers' ICT skills as well.. The training, having 12 day duration will be conducted strictly using participatory method. The main objective of this program is: "How to develop digital content and how it will be applied in the secondary classroom." The major area of contents is the use of MS word, use of MS PowerPoint, Internet browsing, Picture download & use of PowerPoint, Video cutting,

clipping, Joining & conversion, use of the multimedia projector, use of Shikkok Batayon, necessary software downloading and installing, etc.

TQI-SEP

The Teaching Quality Improvement II in Secondary Education Project provides mainly subject-based CPD training for secondary teachers. Furthermore, in 2014, this project introduced similar training programs of A2I with its regular training. The ICT capacity of teachers and their ability to prepare digital content for improving teaching quality are emphasized along with other aspects of the technology in the training programs. A series of training programs have already been arranged and are also going on across the country through the Teachers' Training Colleges.

Teacher's ICT Training of BANBEIS

BANBEIS is implementing the 'Establishment of Upazila ICT Training and Resource Centre for Education (UITRCE)' program in selected 125 Upazila of Bangladesh by the Soft Loan (0.01% interest) from Korea Economic Development Cooperation Fund (EDCF) through Korea Exim Bank and GOB Grant.

Through this program, teachers of primary, secondary, and higher secondary level institutions will be trained in ICT within a short span of time through the Upazila ICT Training & Resource Centre for enhancing IT literacy of the teachers' community and ICT education of the students will be harmonized at the grass-root level. More specifically—

- ICT based education and learning process will be extended and implemented;
- Internet access of teachers and citizens at the local level will be available through the Upazila resource center;
- Databases of BANBEIS will be updated regularly through the Upazila data management center;
- To establish Digital Bangladesh of the Government, access to information of the citizens at the grassroots level will be ensured.

Basically, these three notable initiatives continue to play a pivotal role in the ICT-based online teaching-learning for secondary level teachers in Bangladesh.

Teaching-learning during Covid-19 in Bangladesh

The COVID-19 pandemic in Bangladesh is part of the worldwide pandemic of coronavirus disease caused by severe acute respiratory syndrome coronavirus. The virus was confirmed to have spread to Bangladesh in March 2020. The first three known cases were reported on 8 March 2020 by the country's epidemiology institute, IEDCR.

On March 16, 2020, the Government of Bangladesh declared closures of all academic institutions, dormitories, and coaching centers as well, considering the devastating spread of the coronavirus. With the growing public concern, the closure period got extended from time to time. According to different news sources around 30 million students in all categories of institutions and close to a million teachers as well as education personnel in Bangladesh are involved. The government also argued the public to confine themselves in homes by

maintaining social distancing. These prolonged closures are not only affecting the academic career of these students, but it is also hampering their mental health as well.

Considering the reality, on April 30, 2020, the government asked the public and private universities to continue their classroom deliberations through online classes and start their academic activities online. At the same time, arrangements were made for delivering curriculum-based teaching-learning through television and radio for secondary and primary students. In addition to television and radio-based learning, teachers at the secondary level are instructed by the Department of Secondary and Higher Secondary Education (DSHE) to deliver online sessions. Since then, secondary school teachers across the country have been conducting online learning sessions.

However, during Covid-19 pandemic online and distance learning program expanded rapidly due to closure of the education institution and various studies were conducted during the period on E-learning program. Access to Innovation (a2i) Programme of ICT Division conducted a study throughout the country on primary, secondary, madrasah, technical and Technical education stream that found around 70 percent of the urban students and 30-40 percent of rural students had access to distance learning opportunities by using TV or online class broadcasted through social media. However, students' participation in these distance learning programs was around 50 percent of total students who had access to distance learning and among them only 20 percent participated on regular basis (Das, 2020). Similar findings revealed by the study conducted by BRAC that found only 44% of children who have access participated in distance learning program during Covid-19 pandemic (BRAC, 2020). Various reasons were identified in the studies including lack of ICT device among the teachers and students, lack of internet connectivity or poor internet network, lack of ICT infrastructure in education institutions, lack of technical knowledge of both teachers and students to conduct or participate in distance learning etc. Hossain and Khan (2021) also identified similar findings in their study where lack of device, lack of internet connectivity or poor network in remote places, lack of suitable infrastructure and LMS system of the institutions are identified as challenges to introduce distance learning in higher education institutes of the country. They also found that students and teachers who had device and orientation with ICT facilities showed positive attitude towards online/distance learning while others who have lack of orientation showed less confidence and interest towards distance learning program. Many studies and reports drew conclusion that e-learning and blended learning will be one of the key deliveries of teaching-learning after Covid-19 pandemic (Akhteruzzaman, 6 September 2021; Al-Amin, et. al., 2021; Miah, Kabir, & Sultana, 2020). Thus, findings of all these literatures are found to be encouraging to implement e-learning technologies. Considering the significance of e-learning and blended learning, Ministry of Public Administration published a gazette entitled "Online Training Guideline" on 29 March 2021 that emphasized both online and blended training modality along with regular face-to-face training. In line with this gazette, University Grants Commission of Bangladesh formulated Blended Learning Policy for Higher Education

Institutes in Bangladesh and published the draft policy on 25 August 2021 for feedback and opinion from the stakeholders.

MUKTOPAATH

The Government of Bangladesh (GoB) is determined to implement the "Vision – 2021" of Digital Bangladesh. As a positive gesture, GoB developed the Master Plan for ICT in Education (2012 - 2021). National Education Policy 2010 also prioritized the incorporation of ICT in education. National ICT Policy 2009 also contains a dedicated section on using ICT in the Educational management, and specific tasks to improve ICT education. The Ministry of Education, the Ministry of Primary and Mass Education and the relevant Departments are working together in this regard. As a result, the Govt. set up multimedia classrooms with necessary ICT materials and equipment in around 15000 primary schools across the country and provided necessary trainings to the respective school teachers.

In today's technology-driven world, shift from face-to-face training to online mode has been getting popularity. As GoB is trying to employ ICT in its development initiatives, online training can have great potential in future. Continuous professional development is indispensable for the teachers considering their roles to prepare students for the changing world. Online training can be best help to it. In addition, online mode for training delivery is convenient, cost-effective and minimum time consuming. The participants can learn at their own pace and time, with no interruption in the regular school activities. They can go through the contents anytime they want even after completing the course. Moreover, participants engage in learning through the use of technology and become more familiar with technology by using it.

A2i (Access to Information Programme), being GoB's flagship ICT for Development program, leads the reform through ICT based education initiatives. A2i is extending its efforts to develop online courses. It has developed an online course based on its core face-to-face training with the collaboration of DSHE.

1.2. Background of the research

The Bangladesh Bureau of Educational Information and Statistics (BANBEIS), an attached department of the Ministry of Education, is primarily responsible for generating educational data and statistics for use in educational planning, management, and decision-making. In addition to its usual quantitative survey activities, BANBEIS is currently focusing on qualitative survey and socioeconomic research. Each fiscal year, the government sets aside funds for research. This fund will be used to carry out the proposed research. The study/research areas are listed in the PDS.

1.3. Scope of the research

According to agreement signed between BANBEIS and Samahar Consultants Ltd., data will be collected from at least approximately 500 educational institutions, from a minimum of 32 Upazilla, and representation of all administrative divisions. Also, consider geographical and diversity among institutions in terms of general education and madrasah.

1.4. Objectives of the Study

The overall aim of this study is to derive the intervention on ICT for education significant challenges faced by the teachers and learners. To achieve the above-mentioned aim, the following specific objectives will be addressed—

- To explore how teachers are getting access to ICT devices and capacity building initiatives.
- To understand how they are using the training outputs in the classroom level and home-based learning.
- To identify challenges faced by the teachers to ensure integration of ICT in the teaching-learning process.
- To furnish recommendations to overcome these challenges.

1.5. Study Area

This study will be conducted covering at least 500 educational institutions, from a minimum of 32 Upazilla and representation of all administrative divisions. Also, consider geographical and diversity among institutions in terms of general education and madrasah. The administrative location of this study/Research assignment is indicated in Figure -1 below:

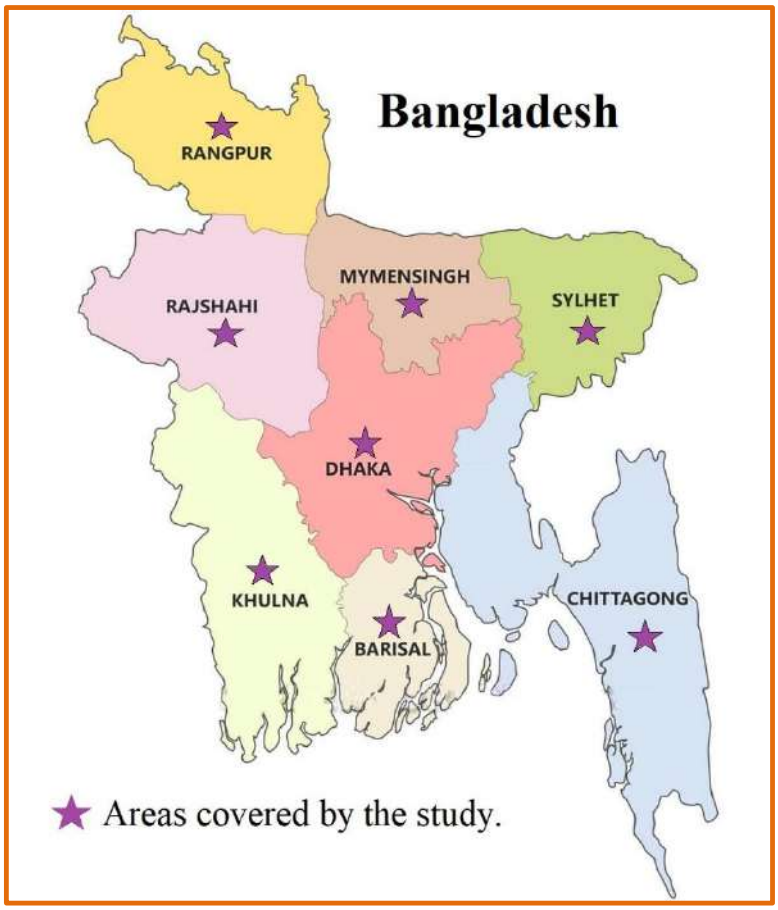


Figure-1: Sample Division of the Study.

Chapter Two

Review of Literature

Samahar Consultants Limited conducted a selective literature review in accordance with the research project's objectives. To come up with potential study questions, the literature on the processes and extent of ICT implementation was evaluated. The researcher chose literature from a global perspective to a perspective involving poor countries, concluding the review with Bangladesh's pertinent components. The material was categorized to see whether there were any successful implementation procedures, either in developed or developing nations, that GOB might use to integrate ICT effectively into Bangladesh's education system. While maintaining a focus on ICT deployment in education, the literature has been narrowed down from global aspects to a more country-specific setting.

2.1. Extent of ICT

One reason for reviewing this material was to see how they increased or attempted to enhance ICT use in their own educational systems. This review provided insight into the ICT implementation processes of nations with diverse and similar socioeconomic backgrounds to Bangladesh, allowing comparisons and contrasts to be made between the two.

In Finland, the education policy is coordinated with the national vision of an information society (Kankaanranta & Linnakylä, 2004; R. B. Kozma, 2008) which generated the schools to buy computers, link them with internet and endorse ICT as a tool for teaching-learning. This policy also brings out the in-service training for teachers to provide the knowledge and skills they needed to reform their pedagogical practices especially regarding the collaboration of technology, teamwork, and teaching-learning (R. B. Kozma, 2005). Establishing students as members of the modern information society is the primary goal of the Finnish strategy of ICT integration in schools. The Information Society Program for Education aimed at developing all citizens' information society knowledge and skills (Castells & Cardoso, 2006).

The government of Malaysia has started a project named Smart School project which contains browser-based teaching-learning materials for language, science, and mathematics education. They have made a connection between smart school management and classroom teaching. The school management also connected with the Ministry's data center and Ministry's helpdesk using a Local Area Network. The Ministry's helpdesk also provides maintenance and support to the pilot schools for better involvement of ICT in classroom practices (El-Halawany & Huwail, 2008). Malaysia desired to move towards a knowledge-based industrial nation. To achieve this goal they have punctuated on ICT-based education in a different level of schools (Hassan, 2011). Thailand's ninth "National Economic and Social Development Plan" (2007-2011) focuses on the development of people's quality of life in a knowledge-based society through a "sufficiency economy" philosophy. This issue is vastly associated with implementing and using ICT in education. Besides thinking of skills and traditional learning process,

Thailand is giving importance to the use of technology to improve students' achievements in different international competitions (Anderson & Plomp, 2008).

The integration of ICT in the secondary education is a national policy across many countries, which was initiated in Sri Lanka in 1980s. There is enough evidence to suggest that ICT has the potential to impact on every aspect of the school activities. Thus, schools cannot remain as mere venues in the fast growing technological transformation. They must promote an effective use of ICT in order to promote new ways of teaching and learning, information management, professional development, creativity 11 109 etc. Developing a set of ICT based practices to capture new knowledge, configure and store them in various formats, disseminate them in effective ways for quick grasping, and apply knowledge in more innovative ways would improve services and outcomes of schools in diverse aspects. Specially, it would help students to reach their full potential. The following sub sections review the use and impact of ICT, and barriers towards integrating ICT in schools. Further, it also discusses the present status of ICT use in secondary education in Sri Lanka. USE & IMPACT OF ICT IN EDUCATION Information and Communication Technology (ICT) is defined as a diverse set of technological tools and resources used to communicate, and to create, store, disseminate, and manage information. The technologies include broadcasting technologies (radio and television) as well as newer digital technologies such as computers and the Internet, which enable set of powerful tools for educational change and reform. Eadie (2000) found that most schools in Australia, USA, England, and Hong Kong have integrated innovative ICT tools to support school practices. Technologies like shared software, video conferencing, digital imaging and editing facilities, video walls for image projection, and online- learning communities are used in schools that allow creating and disseminating knowledge more effectively. Further, chat and instant messaging, virtual art gallery, and virtual museum are tremendous information sharing technologies used in schools. Livetext is another new technology that allows teachers to put up content on a web page and enables online classes. Virtual learning systems are useful tools to store information digitally. Interactive whiteboards transform traditional black boards into an entirely different interactive teaching tool. Condie and Munro (2007) describes mobile technologies, learning platforms, and virtual learning environments as information dissemination technologies, which are fast becoming central to whole range of tools that support school activities. Further, students with special educational needs are also supported with specialist technologies such as speech recognition software and specialist peripherals. Learning platforms and e- portfolios provide a range of ICT based functions around communication and collaboration, content management, curriculum planning. E- portfolios are larger personal online spaces that allow users to store, organize, and personalize information, collaborate and receiveIn addition, diverse tools and services such as email, messaging, discussion forums, and blogs could also play a significant role. The effective use of ICT in schools continues to rise steadily. ICT is now widely recognized as an essential tool for teaching and learning in the 21st century. It is noticeable that most teachers regard ICT positively and report increased use of computers for planning, preparing presentations, worksheets and other learning materials, administration, assessment and tracking students' progress (Ofsted, 2004). The effective integration of ICT in education is a complex and multifaceted process. The appropriate use of ICT expands access to education, strengthens the relevance of education to highly digital work environments, and raises educational quality (Tinio, 2003). Kimble (1999) shows that technology can result in increased student self- confidence and eagerness to learn. Balanskat, Blamire, & Kefala (2006) presents that ICT can impact positively on students' educational performance, motivation, attention, collaboration, and communication and process skills. On the other

hand, it shows considerable evidence regarding the impact of ICT on teachers' increased enthusiasm, efficiency, and collaboration. Newhouse (2002) reported positive impacts of ICT on curriculum, pedagogy, students' learning, and learning environments. It also provided evidences on improvements in active learning, productivity, motivation, higher level thinking, independence, collaboration, and overcoming physical disabilities with the effective integration of ICT in the classrooms. Newhouse, Trinidad, & Clarkson (2002) also noted an effective integration of ICT in the classrooms enables teachers to adopt a balanced pedagogical approach between teacher- centered instruction and learner-centered collaborative environment. Bailey, Day, Day, Griffin, Howlett, Kane, Kirk, McCullough, McKieman, McMullen, Perfect, Ramsey, & Wood (2004) indicated that ICT had enabled teachers to become more efficient with the better management, storage, and maintenance of work. It is also important to note that ICT plays a very effective role in the higher education too. As shown in Kumar and Kumar (2006), the benefits of ICT based practices in the Indian higher education are: improved quality in research and development, curriculum development, administration, students' affairs, and planning and development. However, previous literature also indicated the negative impact of ICT in schools. Although the use of ICT in education has been a priority in most countries from the last decade, considerable barriers still exist. Some schools in some countries have integrated ICT into the curriculum and have transformed teaching and learning with the use of innovative technologies. However, most schools across the world are still in the early stage in adopting ICT and no records for significant improvements due to considerable barriers (Becta, 2005). Therefore, in order to make realistic and holistic solutions for the issues, factors that prevent the full use of ICT in schools must be clearly identified. Balanskat et al. (2006) has divided the perceived barriers in schools into three broader categories: teacher level barriers, school level barriers, and system level barriers. The teacher level barriers incorporate factors related to teachers' attitudes and approach to ICT such as lack of ICT skills, lack of motivation and confidence on ICT, and inappropriate teacher training. School level barriers include those related to the institutional context such as the absence and/or poor quality of ICT infrastructure, limited access to ICT equipment, school's limited project- related experience, lack of experience in project- based learning, and absence of ICT mainstreaming into schools' strategies. The system level barriers are those related to the wider educational framework which mainly focuses on the rigid structure of the traditional schooling system. It is commonly accepted that the effective use of ICT requires more than just the technology and competent teachers. Newhouse (2002) pointed out essential conditions for the effective implementation of ICT. Some of the most significant conditions are: proactive leadership, technical assistance, financial support, culture, policies and procedures, training and support, and provision of hardware and software infrastructure.

2.2. Teacher Training and attitudes to increase the extent of ICT

It is widely acknowledged that teachers' educational beliefs are reliable indicators of their planning, instructional designs, and classroom practices (Bandura, 1989; Pajares, 1992). In other words, training for teachers is one of the essential elements to implementing ICT in the teaching-learning process. It also solves the pedagogical issues for the teachers. Changing attitudes to using ICT in classroom activities can be influenced by some other factors like ICT competence, computer self-efficacy, government policy on ICT literacy, and infrastructure facilities. Besides these, teaching experience, educational level, professional development,

accessibility, technical support, the leadership of the headteacher, the pressure to use ICT also can play a vital role in implementation. (Ali, Haolader, & Muhammad, 2013).

2.3. ICT in bringing interactivity in the classroom

Classroom interaction is one of the leading challenges for effective teaching-learning. Without sufficient participation and engagement from students in classroom activities, learning cannot be ensured. Mutual opportunities to talk about the classroom, proper guidance, creating an environment for participation, and increasing students' autonomy level can make an meaningful interaction in classroom learning (Burns* & Myhill, 2004). On the other hand, interactive practice is the most perceived advantage of using ICT in the classroom for supporting teaching (Beauchamp & Kennewell, 2010). Moreover, Kennewell, Tanner, Jones, and Beauchamp (2008) states that "The term 'interactivity', therefore, can be used to describe technical interactivity as technology serves as an interface between the user and the material, and pedagogical interactivity, which is itself a teaching strategy." Beauchamp and Kennewell (2010) classified interactivity into five categories: no interactivity with ICT, authoritative interactivity, dialectic interactivity, dialogic interactivity, and synergistic interactivity.

In today's technology-driven world, shift from face-to-face training to online mode has been getting popularity. As GoB is trying to employ ICT in its development initiatives, online training can have great potential in future. Continuous professional development is indispensable for the teachers considering their roles to prepare students for the changing world. Online training can be best help to it. In addition, online mode for training delivery is convenient, cost-effective and minimum time consuming. The participants can learn at their own pace and time, with no interruption in the regular school activities. They can go through the contents anytime they want even after completing the course. Moreover, participants engage in learning through the use of technology and become more familiar with technology by using it.

A2i (Access to Information Programme), being GoB's flagship ICT for Development program, leads the reform through ICT based education initiatives. A2i is extending its efforts to develop online courses. It has developed an online course based on its core face-to-face training with the collaboration of DSHE.

Muktopath (www.muktopaath.gov.bd) is an e-learning platform developed by a2i. A2i digitalized a number of courses which were previously provided in face-to-face approach and delivered them through Muktopath. Currently, Muktopath has around 50 online courses. The key beneficiaries of Muktopath are the primary and secondary school teachers of Bangladesh. At present, more than 100,000 participants are directly connected with this platform, and a2i expects all teachers to be connected in future. Besides, the government authorities related to school education are now focusing on online training for minimizing the expenses and time needed.

2.4. Effective and quality education

By improving quality of the education and instruction, enhancing the assessment system, and reducing dropouts from class, ICT has introduced a new era globally. It has transformed the education system from a teacher-centered system to a student-centered one in a very smooth way. This transformation empowers students towards better problem-solving abilities, more creative thinking, better communication skills, and other improved higher-order thinking (Trucano, 2005). Many nations believed in this transformation, and they re-introduced their policy on reflecting on this issue (ADB, 2012), while it may also be reflected in national educational targets.

On the other hand, the conventional and rigid, face-to-face classroom system makes students bored, and they lose their interest to attend classes. This boredom causes dropouts from the different levels of the educational system. Students from wealthier families go for private tuition to increase the chances for a better result in school; this is not possible for students from comparatively poor backgrounds. Using ICT in classroom activities can make these classes more exciting and can increase the attention of students easily (Haddad & Draxler, 2002).

2.5. Teacher training making an impact

Although home access and infrastructure capability have increased noticeably over the last few years, teachers do not appear to make practical use of ICT in their instruction because of their attitudes towards ICT as well as a lack of skill in this area(Cox et al., 2003).

According to Williams, Coles, Wilson, Richardson, and Tuson (2000), "Teachers' attitudes towards ICT in education have a significant influence on ICT adoption and implementation behaviors in the classroom. Teachers, in general, agree that computers constitute a valuable tool and they are positive about students' attainment of ICT knowledge and skills. In many cases, they perceive ICT as a new subject matter in education rather than a new way of teaching and interaction between learners and knowledge". Moreover, even though teachers are concerned about the importance of ICT in education, they tend to be less interested in its extensive use in classroom activities. Teachers are more doubtful about ICT's potential to improve the teaching system (Higgins, 2003).

There are claims that the presence of technology creates pressure on teachers to make classroom activities more efficient. But, technology does not have an educational value itself.

Technology becomes essential when teachers use it efficiently in the pedagogical process. Technology brought innovation and development in teaching-learning process in education, but it must be implemented by teachers (R. B. Kozma, 2003). So, teacher's attitude and readiness to use technology are vital in achieving ICT in education successfully (Garland & Noyes, 2004; W. J. Pelgrum, 2001).

2.6. Government's vision and plan

According to an ADB report (2009), some countries have plans of ICT integration; but these ideas are isolated from their national policies. ICT for education plans are often disjointed, as they are developed without considering the infrastructure, finances, and development as defined by the domestic ICT policy. ICT for education is a part of the national education plan. It must be associated with education development objectives and merged with the sector plan of education. National ICT policy must also be incorporated with the parameters of the education system, and there should be a technology-enabled environment.

Basic computer literacy needs to be initiated to integrate into teaching-learning. Many countries also realized that they need to revise their policy to make a favorable pedagogical perspective through ICT and according to that they are giving more importance to teachers' training now (UNESCO, 2004). The government of Malaysia wanted to reduce the digital partition between the schools, increase the usage of ICT tools in the teaching-learning process, integrate different subjects through ICT. School management will also be more effective and productive (Said et al., 2013). To achieve these goals they started with a smart school project in four phases from 1999 to 2020. They changed their medium of instruction from the native language to English to teach mathematics and science in 2003. It encouraged more students to use ICT outside of schools. Ministry of education has distributed almost 3778 titles of ICT-based teaching materials to the schools from 1999-2008. It encouraged teachers to use ICT in classroom activities (ADB, 2009). The Government of Malaysia took necessary steps to conquer the challenges on the way of ICT integration in education. It can be an excellent example to follow for different Asian countries that are still struggling to implement ICT in their education sector.

2.7. Teachers' beliefs and readiness

Despite so many benefits of using ICT in education, in many cases learning the potential of ICT is dispossessed as teachers are still not fully ICT literate and they do not use any technology in their teaching. A study in teachers' readiness in ICT shows that there is still a long way to go before schools will be able to take the full advantages of ICT use in education (So & Swatman, 2006). Teachers' attitudes and beliefs are one of the main generators of the use of technologies in instructional settings (Almusalam, 2001). According to Mumtaz (2000) teachers' belief about integrating ICT in teaching-learning is the core part of ICT implementation in education. Conceptual change in the nature of learning is vital to change the attitude of teachers and to generate belief in ICT as an instructional tool. They will able to determine the extent of their engagement with ICT and also will find out how engaged the students can be in using technology. Besides, teachers also need to bring a positive attitude to handle ICT regularly. This belief will allow them to gain a sufficient level of understanding to implement it successfully. When teachers become knowledgeable about ICT use in the

classroom, this efficiency encourages them to integrate ICT in a more significant scope into all aspects of education (Afshari, Bakar, Luan, Samah, & Fooi, 2009).

Teachers become more cautious to use ICT in schools when they utilize ICT for their learning. Sometimes, they also think that ICT is not relevant in class-based instruction for promoting cooperation and reflection in learning as they recognize ICT can drive students easily to real-life learning (Barak, 2006). Without understanding the usefulness of ICT, teachers do not become interested in using ICT instead of their traditional teaching strategy (Sang et al., 2010).

Most of the countries across the world struggle to find out efficient ways to prepare teachers to adopt ICT as an integral part of their everyday teaching strategies. Therefore, a thorough analysis of a teacher's perception about integrating ICT can give an idea about the rudiments of their effective grounding (Hennessy et al., 2010). To explore the factors deterring teachers' readiness and confidence in using ICT in teaching, Tella, Tella, Toyobo, Adika, and Adewuyi (2007) found that "inadequate knowledge to evaluate the role of ICT in teaching and learning, lack of skills in the use of ICT equipment and software had resulted in a lack of confidence in utilizing ICT tools." Lack of technical support and expectation of making mistakes while using technology in the classroom during teaching have reduced teacher's confidence and caused teachers to avoid its use (Khan et al., 2012).

2.8. Infrastructure and other resources

Generally, in a developing country, the government wants to invest more money in defense or agriculture compared to education. Bangladesh is not isolated from this strategy. It seems difficult for developing countries to ensure an excellent financial allocation for education or ICT implementation in education. Afshari et al. (2009) stated that efficient and effective use of technology depends on the availability of hardware and software and the equity of access to resources by teachers, students, and administrative staff. These costs are in most cases inflated and cannot be provided by most developing countries, including Bangladesh.

In Myanmar, electricity in schools is infrequent, and as a reason, only 1% of primary schools can use technology compared to 15% at the secondary level. Similarly, in Cambodia and Nepal, computer-assisted instruction is available in 3% and less than 0.5% in primary and secondary schools, respectively (ADB, 2009). That is to say, balancing priorities of integrating ICT among institutional subsectors is vital for educational development. Investment in ICT for education also depends on these preferences. A plan should be made which includes the resources and the proper use of it. It will create a technology-enabled environment. As an example, if all the resources are brought into the classroom, and they require electricity then continuous power supply should be the priority for that school area. Similarly, it is of no help to teachers if the e-resources they rely on are available on the internet, but there is no connectivity (ADB, 2009).

2.9. The interest of School administration

The vision of school leaders is essential to make successful integration of ICT in school-level education. School leaders underscored the importance of using ICT for pedagogical approaches which can create a barrier to lifelong learning for the students. In some cases, school leaders seemed relatively inactive to make an influence on teachers' motivation to use ICT in classroom activities. It has already been proved that the more active school leaders lead, the more active ICT integration in the teaching-learning process is (W. Pelgrum, 2008). Alternatively, if teachers think that this policy is imposed from outside without consulting with them or if they do not have enough training or instructional practice, any policy will be challenging to implement at the field level. Instructional complications and lack of programs and resource alignment hinder the implementation of the process (Cohen & Fink, 2001).

As an overpopulated developing country, Bangladesh has a considerable number of youth who are going to schools now. Besides this, the state does not have enough qualified teachers to educate them, and teachers are already burdened with heavy workloads. Moreover, most of the teachers are doing administrative works alongside teaching in the classroom. In these circumstances, it is almost impractical for teachers to design and develop their classes by using technology (Afshari et al., 2009; Beggs, 2000). Some teachers are unable to practice teaching by using ICT, and some are unwilling to try because of anxiety, time shortages and lack of motivation (Duhaney, 2001). In this situation, the administration should take more responsibility for encouraging teachers in integrating ICT.

2.10. Social Cultural challenges

R. Sharma (2003) states that one of the most significant social factors influencing the use of ICT in Bangladesh, Malaysia, and other developing countries is the low social status of women. Providing education or incorporating women's role in the use of ICT is not considered necessary. As teachers are not often compensated for the extra time they need to integrate ICT, they lose their interest in using technology in their class. Bangladesh had consistently ranked as one of the most corrupt countries for few years according to Transparency International (Bhuiyan, 2011). Corruption is widespread here and is one of the identifiable reasons behind the slow or no integration of ICT in education (Zafarullah & Siddiquee, 2001). Mamun and Tapan (2009) stated that "The budget for the newer technology was misused and reduced due to corruption in the administration. Huge budgets are passed to buy modern and other teaching and learning materials for the improvement of the teaching and learning process, but in the end, only minor improvements are found in the overall technical and vocational education sector." The misuse of money and by misusing government allocation to personal accounts, few people create an obstacle to proper development in different sectors, including education. This money could have been used in implementing ICT at every level of education (Kessy, Kaemba, & Gachoka, 2006).

As most people and students use Bangla (mother tongue) as their medium of communication and study, English is not spoken widely throughout Bangladesh (Turbill, 2001). On the other hand, almost all of the software which is used in ICT is in English, and this language barrier creates problems to use ICT for most school teachers. The scarcity of Bangla software is a mental obstacle for almost all people in Bangladesh.(Sultan 2010)

2.11. Lack of Knowledge and skills

According to W. J. Pelgrum (2001), the success of educational innovations depends mostly on the skills and knowledge of teachers. Teachers' lack of knowledge and skills is one of the main hindrances to the use of ICT in education both for the developed and underdeveloped countries (Ihmeideh, 2009; Mamun & Tapan, 2009; W. J. Pelgrum, 2001).

Berner (2003) found that the faculty's belief in their computer competence was the most significant predictor of their use of computers in the classroom. Therefore, lack of knowledge regarding the use of ICT and lack of skill on ICT tools and software have also limited the use of ICT tools in a teaching-learning situation in Bangladesh.

2.12. Summary of literature

To sum up, from the literature review, it has been found that western and developed countries have implemented ICT in education more successfully. They have introduced ICT in their education system long before the developing countries have done. Developed countries have built infrastructures, trained teachers, and ensured internet access to schools, and made collaboration among the teachers to achieve the goal of ICT integration in teaching-learning. As a result, they are already getting positive feedback on their successful implementation of ICT in education.

On the other hand, ICT integration is a comparatively new idea in developing countries like Bangladesh which has recently formed a new policy and plan for the inclusion of technology in its education system. Though they are trying to follow the way introduced by western and developed countries, it is becoming challenging for them because of various socio-economic factors. From previous literature, it can be seen that the culture of using ICT in education is building up throughout the world and the approach is pretty positive towards technology inclusion in education.

There are some studies done on account of ICT implementation in the education system of Bangladesh. Most of the studies tried to find out the barriers to implementing ICT successfully. Some of them only mentioned the government's vision on including ICT in education, but none of them analyzed the education policy to figure out GOB's plans and objectives of ICT integration in education. These studies presented the data about present difficulties, but there was no guideline to solve these problems and fulfill the aspirations of ICT integration according to the national education policy. In previous studies, some researchers focused only on higher education of the country, and some concentrate on the overall situation. There were no studies

found in Bangladesh's perspective where researchers have conducted studies on the condition of ICT integration in secondary education. Moreover, no study has found on teachers' readiness on integrating ICT in the secondary school of Bangladesh.

In this study, the research team made a correlation between national education policy and ongoing practices in secondary schools of Bangladesh. It will help to figure out how secondary schools are adopting ICT usage according to the theory in their teaching and learning process. The researcher will analyze the situation with the data which will tell the story about the extent of ICT usage in schools, teachers' attitudes towards ICT integration, the impact of ICT in teaching and learning, and the challenges facing the integration of ICT in education. As there are no previous studies to make a comparison between education policy and ongoing practices in schools, the researcher has attempted to figure out how secondary schools are incorporating ICT into their medium of instruction.

At the same time, this study will determine the reflection of these acquired skills in conducting the online classes at the secondary level in normal as well as in emergency situation as was experienced in during Covid 19.

Chapter Three

Research Methodology

In this research, we will use both qualitative and quantitative methods to fulfill the objectives. Information will be collected from both primary and secondary sources. A rapid background document/literature review will be conducted that presents an overall idea about the assignment. Samahar Consultants Ltd will conduct the entire study with guidance and supervision of BANBEIS. Samahar Consultants Ltd will develop details methodology, select sample area, develop data collection instruments as per objectives of the assignment; collect data from sample area, process data (coding, editing and entry), develop report and share it with BANBEIS. As this study will follow a mixed method namely quantitative and qualitative method, Triangualtion will be applied for ensuring an objective approach to data analysis.We understand that Triangulation is a method used to increase the credibility and validity of research findings.1 Credibility refers to trustworthiness and how believable a study is; validity is concerned with the extent to which a study accurately reflects or evaluates the concept or ideas being investigated.2 Triangulation, by combining theories, methods or observers in a research study, can help ensure that fundamental biases arising from the use of a single method or a single observer are overcome. Triangulation is also an effort to help explore and explain complex human behaviour using a variety of methods to offer a more balanced explanation to readers. It is a procedure that enables validation of data and can be used in both quantitative and qualitative studies.

Triangulation can enrich research as it offers a variety of datasets to explain differing aspects of a phenomenon of interest. It also helps refute where one dataset invalidates a supposition generated by another. It can assist the confirming of a hypothesis where one set of findings confirms another set. Finally, triangulation can help explain the results of a study. Central to triangulation is the notion that methods leading to the same results give more confidence in the study finding. (Carvalho S , White H . *Combining the quantitative and qualitative approaches to poverty measurement and analysis: The practice and the potential. World Bank Technical Paper 366*. Washington, D.C: World Bank, 1997).

The research study has been done following the processes of document search, field visit, quantitative and qualitative data collection, data analyze and report writing. Details methodology of the study is given below:

3.1. Desk Review

The research team of Samahar Consultants Ltd has conducted a thorough review of the secondary data from available publications. Secondary information was collected from existing data sources through desk review. A rapid desk review was conducted that presented an overall idea about the assignment. Samahar Consultants Ltd has undertaken the document review by following a systematic way as mentioned below in the framework.

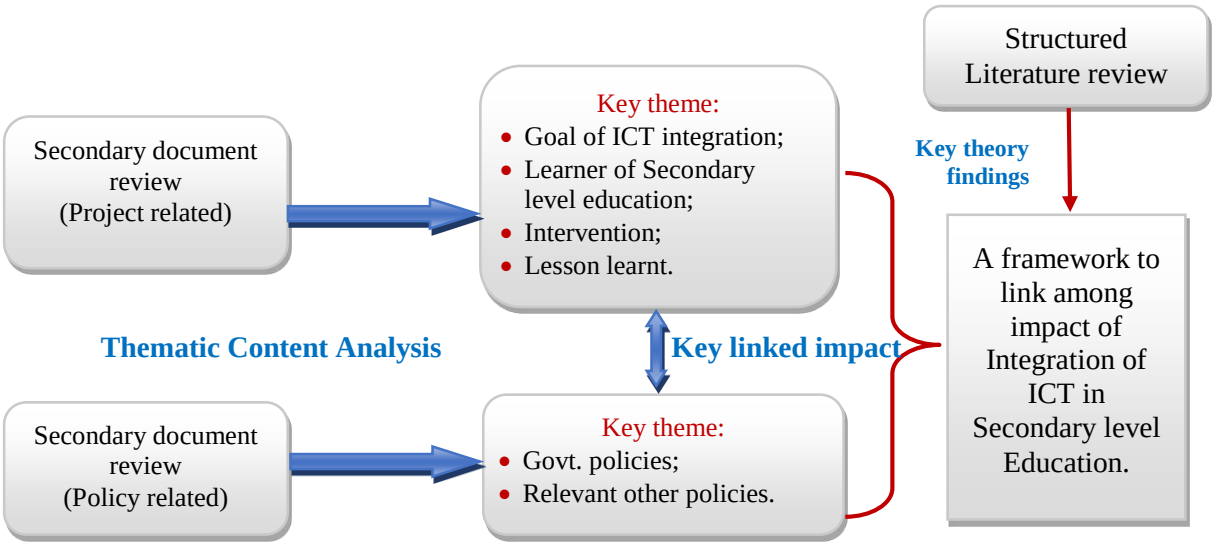


Figure-2: Framework of desk Review.

3.2. Sample Size of Different Schools

Following theToR, data was collected from at least 500 educational institutions, from a minimum of 32 Upazilla and representation of all administrative divisions. The geographical and diversity among institutions in terms of general education and madrasah was also considered. So the

minimum sample size is n=500 institutes. Different types of institutes will be considered as pr imary sample units (PSUs) i.e. — High School, Madrasa, Secondary Technical Institutes. Apart from this variation, the sample will cover different types, i.e— Boys, Girls, and Combined; Government and Non-Government. Besides, the sampled institutions have been selected considering plain land, coastal area, and hill areas.

3.3. Sampling Procedure:

A multistage sampling technique has been applied to get the required number of secondary schools (PSUs), which is described below:

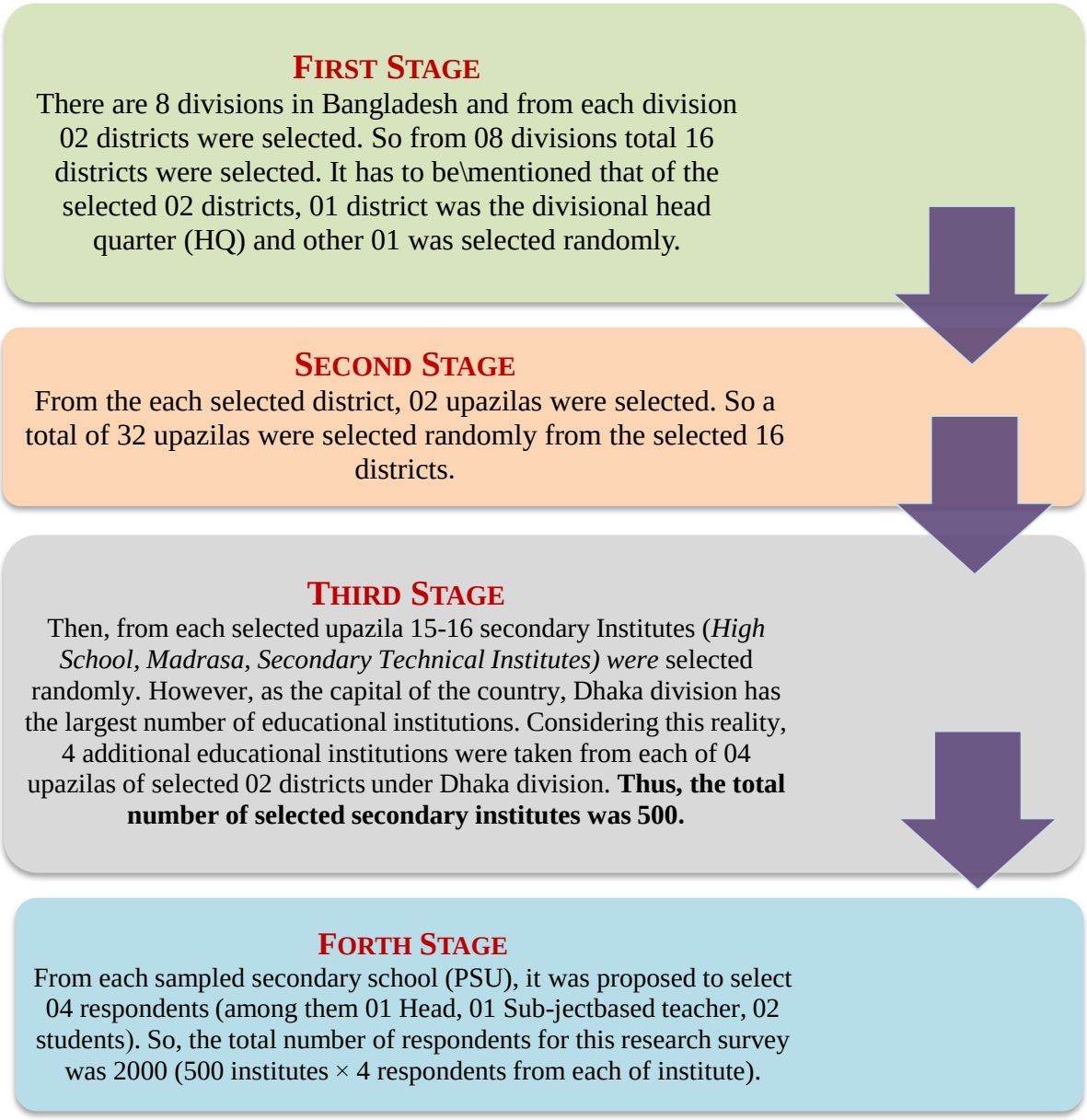


Figure-3: Description of Sampling at different stages.

Selection of Respondents from Secondary Schools (PSUs)

Table 2.1: Distribution of Respondents of Questionnaire Survey by Division, District, Upazila and institutions.

Division	District	No. of Upazila	No. of institution	No. of respondents in different categories		Total Respondents	Land Type
				Head Teacher	Subject based Teacher		
Dhaka	Dhaka	Dhaka City Corporation	27	17×1=17	17×4=68	125	Plain-land City Corporation
		Savar	26	16×1=16	16×4=64	120	Plain-Land
	Kishoreganj	Nikli	7	7×1=7	7×4=28	45	Haor Basin
		Mithamain	6	6×1=6	6×4=24	40	Haor Basin
Chattgram	Bandarban	Lama	16	16×1=16	16×4=64	80	Hill tract
		Bandarban	15	15×1=15	15×4=60	75	Hill tract
	Cox's Bazar	Chokoria	16	16×1=16	16×4=64	80	Coastal Land
		Maheshkhali	15	15×1=15	15×4=60	75	Coastal Land
Rajshahi	Rajshahi	Rajshahi	16	16×1=16	16×4=64	80	Plain-Land
		Puthia	15	15×1=15	15×4=60	75	Plain-Land
	Natore	Natore Sadar	16	16×1=16	16×4=64	80	Plain-Land
		Bagatipara	15	15×1=15	15×4=60	75	Plain-Land
Khulna	Bagherhat	Bagherhat Sadar	16	16×1=16	16×4=64	80	Plain-Land
		Koyera	15	15×1=15	15×4=60	75	Coastal Land
	Jhenaidah	Jhenaidah Sadar	16	16×1=16	16×4=64	80	Plain-Land
		Kaliganj	15	15×1=15	15×4=60	75	Plain-Land
Barisal	Barisal	Barisal	16	16×1=16	16×4=64	80	Plain-Land
		Babugonj	15	15×1=15	15×4=60	75	Plain-Land
	Patuakhali	Kalapara	16	16×1=16	16×4=64	80	Coastal Land
		Golachipa	15	15×1=15	15×4=60	75	Coastal Land
Sylhet	Sylhet	Sylhet Sadar	16	16×1=16	16×4=64	80	Plain-Land
		Dakkhin Surma	15	15×1=15	15×4=60	75	Hill tract
	Sunamganj	Tahirpur	16	16×1=16	16×4=64	80	Haor Basin
		Dharmapasha	15	15×1=15	15×4=60	75	Haor Basin
Rangpur	Rangpur	Rangpur	16	16×1=16	16×4=64	80	Plain-Land
		Kaunia	15	15×1=15	15×4=60	75	Plain-Land
	Kurigram	Rajarhat	16	16×1=16	16×4=64	80	Char-Land
		Ulipur	15	15×1=15	15×4=60	75	Char-Land

Division	District	No. of Upazila	No. of institution	No. of respondents in different categories		Total Respondents	Land Type
				Head Teacher	Subject based Teacher		
Mymensingh	Mymensingh	Mymensingh	16	16×1=16	16×4=64	80	Plain-Land
		Muktagacha	15	15×1=15	15×4=60	75	Plain-Land
	Netrokona	Mohanganj	16	16×1=16	16×4=64	80	Haor Basin
		Kaliajuri	15	15×1=15	15×4=60	75	Haor Basin
08	**16**	**32**	**500**	**500**	**2000**	**2500**	**--**

Table 2.2: Distribution of FGDs Conducted Under the Study.

Serial	Name of the Divisions	Number of FGD	No. of FGD participants	Remarks
1.	Dhaka	2	24	1 Plain-Land+1 Haor Basin
2.	Chattagram	2	21	2 Hill tract
3.	Rajshahi	2	20	2 Plain-Land
4.	Khulna	2	20	2 Plain-Land
5.	Barishal	2	22	1 Plain-Land+ 1 Coastal Land
6.	Sylhet	2	18	1 Plain-Land+1 Haor Basin
7.	Mymensingh	2	16	1 Plain-Land+ 1 Haor Basin
8.	Rangpur	2	15	1 Plain-Land+ 1 Char Land
Total		**16**	**156**	

Table 2.2: Distribution of KII Conducted Under the Study.

Serial	Designation of the Respondent	Number of KIIs to be conducted
1.	Deputy Director (Secondary and Higher Secondary)	8
2.	District Education Officer	16
3.	Upazila Secondary Education Officer	32
4.	SMC member: *from any of selected institution*	16
5.	**Total**	**72**

3.5 Summary of Sample Size:

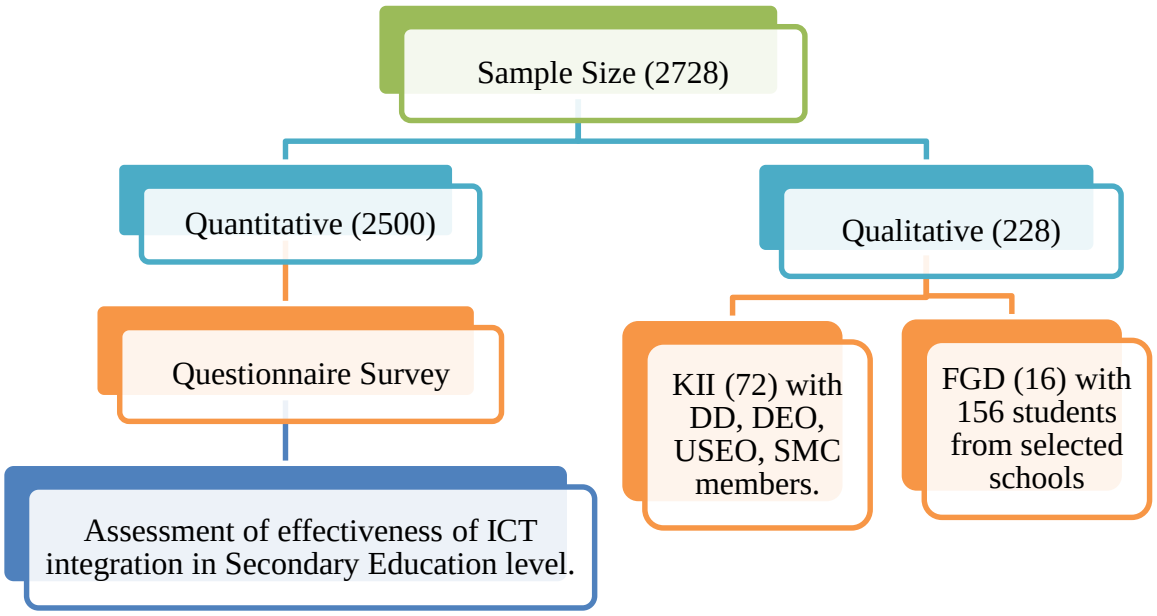


Figure 3: Sample Size of the Study.

3.6 Data Collection

Data collection activities emphasized two important aspects:

- Ensure data quality through recruitment of competent and experienced data collectors; training of field staff, pretest of data collection tools; supervision of data collection, monitoring, and spot checking randomly for data quality;
- Ascertain comprehensive and valid data collection: obtain respondent consent, gain respondent empathy and reliability ensuring anonymity of data analyses and reporting.

The table below delineates the methods of data collection, samples, and instruments of data collection.

Table 3.1: Data Collection Methods and Samples

Types of Investigations and Data Collection	**Data collection methodologies and sample**	**Instruments**
For Quantitative Survey		
In-depth interviews were conducted with Headteachers and SMC members.	• 500 In-depth interviews were conducted with the Head Teacher of the sampled 500 secondary level educational institutes. • 2000 In-depth interviews	A semi-structured open-ended questionnaire (well pretested) was used.

Types of Investigations and Data Collection	Data collection methodologies and sample	Instruments
	were conducted with the subject-based teachers teachers who were involved in ICT based Teaching-learning in the sampled educational institutes.	
For Qualitative In-depth Investigation		
A thorough literature review of all existing documents, publications, and databases of school management of Secondary schools.	• Through review	Use standardized checklist
Effectiveness of ICT integration in Secondary Education level	• 156 students from Selected 16 Secondary level institutions in different geographic areas of Bangladesh covering 08 administrative divisions were assessed. • From each institutions, 8-12 students participated.	Checklist has been used (well pretested)
KII (72) with the DEO, USEO and SMC member of the sampled school.	In-depth Interviews covered a-total-of 16 districts, 32 Upazila and a portion of sampled secondary level educational institutes.	A standardized checklist was used.

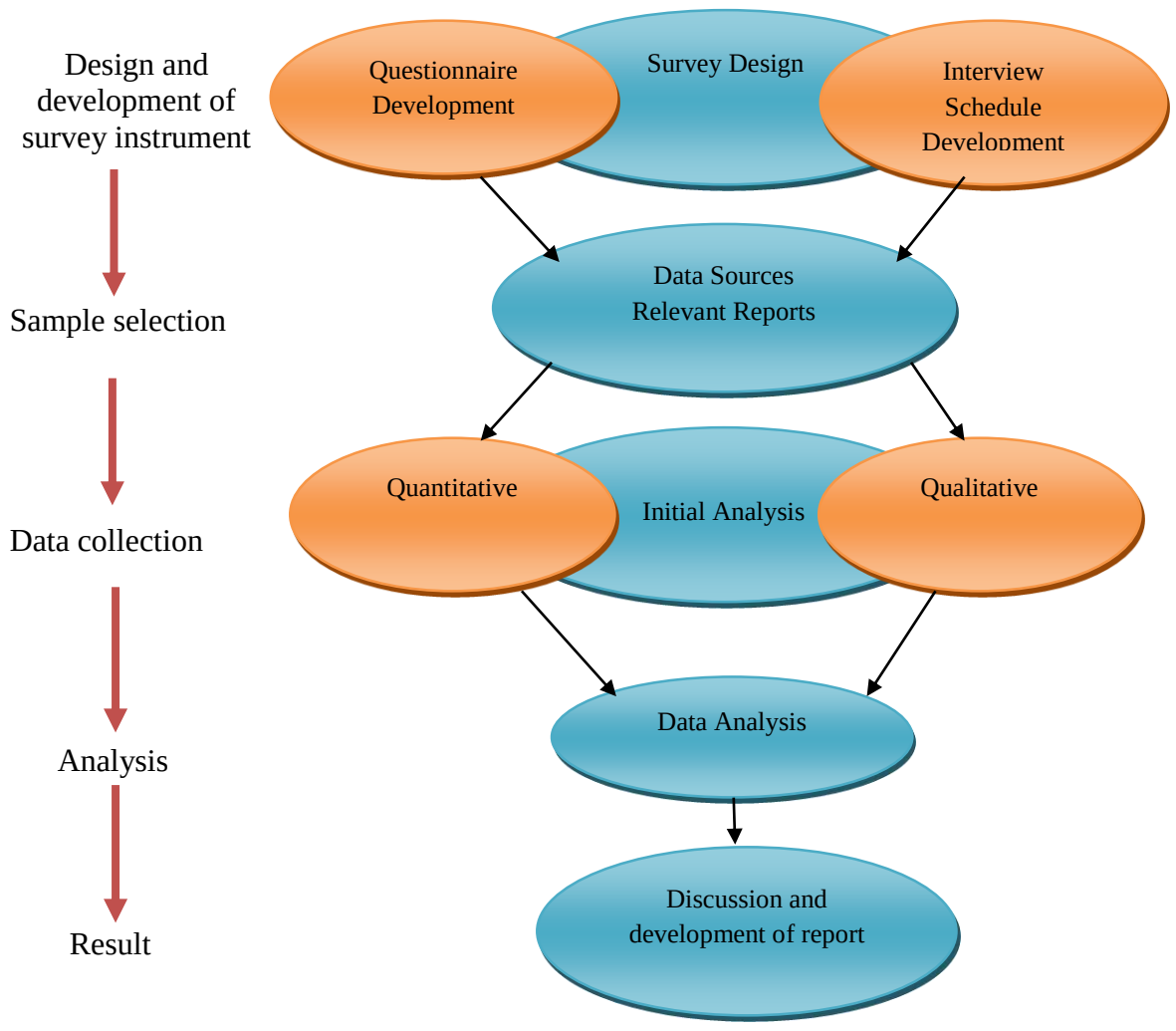
3.7 Appropriate (Verifiable) Indicators

- **Respondents' Characteristics:** Socio-economic, demographic: age, education, occupation, monthly family income and expenditure, involvement with other relevant activities, etc.;
- **Teachers who are involved in ICT based Teaching-learning related information:** Process of using ICT in conducting ICT, availability of ICT device required for preparing learning materials and conducting the session, the role of SMC regarding conducting ICT based teaching-learning, availability of electricity and internet, deference between ICT based and non-ICT based teaching-learning, advantage and disadvantage of ICT based teaching-learning, Challenges and limitations of online class conduction, etc.;

- **Variables:** Aim and objectives of the integration of ICT, teachers access to ICT devices, initiatives of building teachers capacity, understanding the training outputs, challenges faced, and way to overcome these challenges;
- **SWOT:** Strengths, Weakness, Opportunities, and Threats to improve quality of initiatives has taken to ensure Integration of ICT in Secondary level Education and recommend measures and lessons for more effective and sustainable development of Integration of ICT in Secondary level Education.

3.8 Evaluation Design

The use of questionnaires and semi-structured interviews was conducted in this study for the collection of data from varied areas. After the data collection, it was analyzed and the report was developed as per findings.



Figur-4: Summary of Evaluation Design.

3.9 Data Consolidation and Analysis

3.9.1 Data Consolidation and Processing

Every filled-in questionnaire was thoroughly edited and checked before the schedule was coded for computer entry when data consistency checks were run generating frequency distribution using SPSS. Data processing work consisted of registration of all completed schedules and editing, coding, cross-checking, data entry, and matching of data. Researcher-3 cum statistician had overseen the data processing activities.

Registration of Documents: There was one registration section in the office and the main responsibility of this section was to keep track of the filled-in interviewing documents, information schedules, performance reports, and other necessary papers.

Data Editing: The information collected during fieldwork was scrutinized 100% of each interviewer's interview schedule to check the quality of the raw data. The Supervisors and QCO were involved to edit data at the field level.

Coding: A coding system was developed and all data were coded. Individual coding manual was developed for individual questionnaires by the experts.

Data Entry: Data entry was conducted by the data entry operator under the supervision of researcher-3 cum statistician. Before data entry, a data entry program was developed in SPSS.

Data Cleaning: Data cleaning is an important procedure during which the data was inspected, and erroneous data were corrected. Data cleaning was done during the stage of data entry.

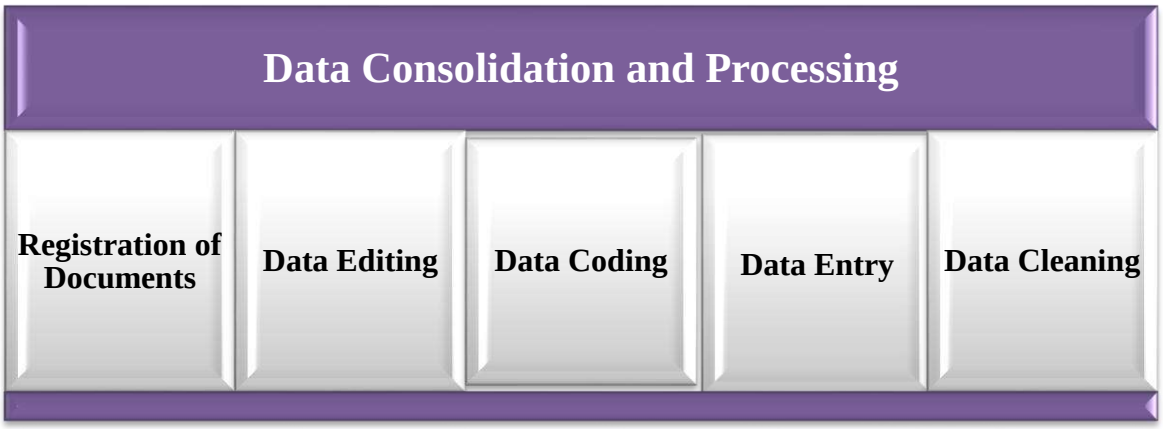


Figure 5: Stages of Data Consolidation and Processing.

3.9.2 Data Analysis

Data analysis was undertaken after rigorous editing, transfer of data through coding and data entry into the computer using computer software (SPSS) and analyze data using statistical tools both for bi-variety and multi-variety analysis reflecting efficiencies and effectiveness of project inputs;

Quantitative data was analyzed considering divisions, districts, types of schools (government and non-government schools), and also urban and rural.

The analysis of qualitative research involved aiming to uncover and/or understand the big picture by using the data to describe the phenomenon and what this meant. It began in the field, at the time of observation, interviewing, or both, as the researcher identified problems and concepts that appeared likely to help understanding the situation. Simply reading the notes or transcripts is an important step in the analytic process. It should be remembered that data analysis and interpretation are required to bring order and understanding of qualitative data. This requires creativity, discipline, and a systematic approach. There is no single or best way.

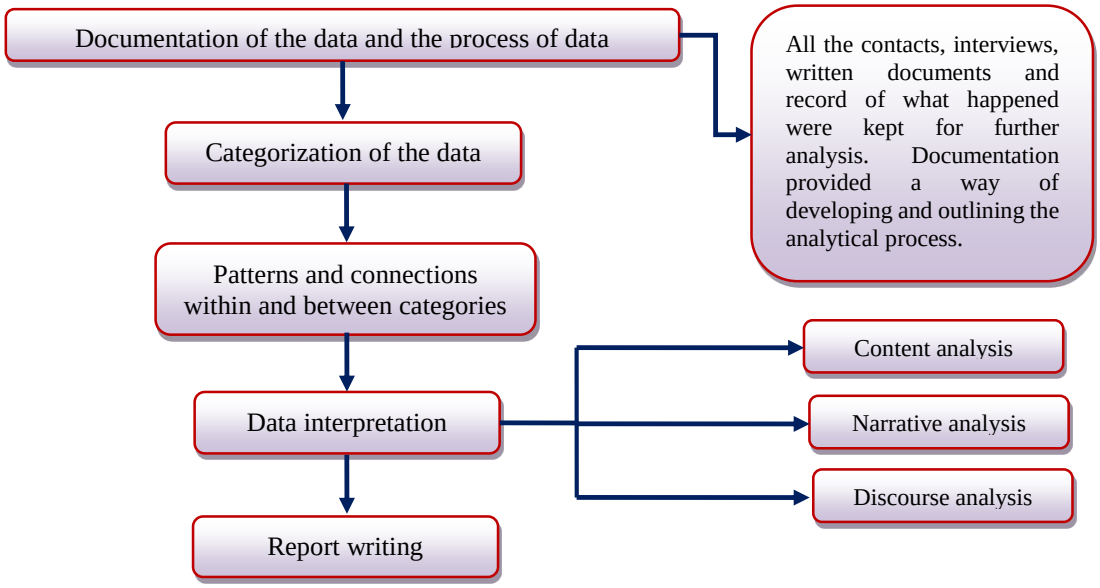


Figure 6: Data processing and analysis techniques followed for the study.

3.9.3 Analysis Plan

Principally two types of analysis techniques namely;

(i) Descriptive Analysis

(ii) Inferential Analysis was adopted as shown below.

Descriptive Analysis

- Mathematical summary statistics (mean, standard deviation, proportion, association measurement, etc.),
- Graphical representation (Bar-chart, pie chart, frequency curve etc.).
- For the relationship between the indicators correlation and regression analysis will be used
- Proper sampling weight by stages will be taken into account while estimating the above.

Such analyses will enable the appropriate characterization of obtained information.

Inferential Analysis

Construction of 95%, 90%, etc. confidence intervals for crucial benefit variables was constructed to enable one to understand what was the expected range of benefit in the population. Hypothesis testing regarding differences in means, variances, proportion, etc. was done.

3.9.4 Tabulation Plan

Simple tables, as well as multivariate tables, were constructed including various indicators of the study. All members of the core research team were involved in data analysis and writing of the draft report. The analysis was preceded by coding and editing of data. The quantitative part of the analysis was substantiated by information to be obtained through the qualitative research.

Chapter Four

Findings and Interpretations

The secondary educational institutions (General schools, Madrasha and Technical Institute) were the study units. Thus, along with the institutional representatives (Head teachers and Subject based Assistant Teachers), relevant stakeholders like students by gender, members of school management committees, parents, representatives of Educational Administration (DEO/USEO/AUSEO from districts/Upazilas), etc. had been covered under the study as appropriate respondent.

4.1 Demographic Information

4.1.1 Number and Types of Secondary Institutions

Out of 500 institutions, there were 60% general secondary schools, 30% Madrasas, and 10% Technical institute which is shown in Table-4.1. This was selected based on the pre-determined sample size. From all 08 administrative divisions, an equal percentage of general schools, madrasas, and Technical Institute *i.e.* 60:30:10 for each division were selected.

Table 4.1: Distribution of Institutes covered by this study.

Division	General High School		Madrasah		Technical Institute		Total	
	N	%	N	%	N	%	N	%
Dhaka	41	13.7	24	16.0	8	16.0	73	14.6
Chittagong	37	12.3	18	12.0	6	12.0	61	12.2
Rajshahi	37	12.3	18	12.0	6	12.0	61	12.2
Khulna	37	12.3	18	12.0	6	12.0	61	12.2
Sylhet	37	12.3	18	12.0	6	12.0	61	12.2
Barisal	37	12.3	18	12.0	6	12.0	61	12.2
Rangpur	37	12.3	18	12.0	6	12.0	61	12.2
Mymensingh	37	12.33	18	12.0	6	12.0	61	12.2
Total	**300**	**100.0**	**150**	**100.0**	**50**	**100.0**	**500**	**100**

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

4.1.2 Number of the sampled respondent by Gender

A total of 2500 teachers were selected as sampled from the 500 secondary level educational institutions. The average number of teachers of each of 500 institutions are 05. Thus 1500 teachers from general high schools, 750 teachers from madrasa, and 250 teachers from vocational institutes were selected. Of those teachers, the ratio for the female teacher was 39.52% and for male teachers was 60.48%, shown in table 4.2.

Table-4.2: Sampled Teacher by gender.

Gender	General High School	Madrasah	Technical Institute	Grand Total	
				N	%
Male	835	490	187	1512	60.48
Female	665	260	63	988	39.52
Total	**1500**	**750**	**250**	**2500**	**100**

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

A total of 2500 respondents participated in the interview (among them 2000 were subject based Assistant Teacher, and 500 were Head teacher). Apart from interview, 16 FGD were conducted among students; and KII were conducted for 72 people holding the administrative position of secondary education level in district and Upazila level. Moreover, SMC members from selected institutions were informants of KII. The table 4.3 below shows the overall number of respondents, and the ratio of females to males at this stage.

Table4.3: Rate of participation of Female and Male in the different methods used in the study

District	Male						Female						Total					
	No.			%			No.			%			No.			%		
	Interview	FGD	KII	Interview	FGD	KII	Interview	FGD	KII	Interview	FGD	KII	Interview	FGD	KII	Interview	FGD	KII
Dhaka	225	1	5	14	12.5	12.5	122	1	4	16	12.5	12.5	347	2	9	13.88	12.5	12.5
Chittagong	193	1	5	12.6	12.5	12.5	131	1	4	11.4	12.5	12.5	324	2	9	12.96	12.5	12.5
Rajshahi	198	1	5	10.4	12.5	12.5	143	1	4	10.3	12.5	12.5	341	2	9	13.64	12.5	12.5
Khulna	170	1	5	11.6	12.5	12.5	104	1	4	14.9	12.5	12.5	274	2	9	10.96	12.5	12.5
Sylhet	179	1	5	13.5	12.5	12.5	127	1	4	12.6	12.5	12.5	306	2	9	12.24	12.5	12.5
Barisal	179	1	5	11.7	12.5	12.5	118	1	4	10.3	12.5	12.5	297	2	9	11.88	12.5	12.5
Rangpur	186	1	5	14.2	12.5	12.5	122	1	4	12.6	12.5	12.5	308	2	9	12.32	12.5	12.5
Mymensingh	182	1	5	12.1	12.5	12.5	121	1	4	12	12.5	12.5	303	2	9	12.12	12.5	12.5
Total	**1512**	**8**	**40**	**100**	**100**	**100**	**988**	**8**	**32**	**100**	**100**	**100**	**2500**	**16**	**72**	**100**	**100**	**100**

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

The distribution of teachers was the same percent in each division. But, the number of sampled Male and Female teachers was not equal, but varied to some extent by gender and also by division. The data depicted in the table shows clearly that the distribution of teachers of surveyed institutions varied by gender from 39.52% with little exception. Table (4.4) shows the detailed information on the number of male and female respondents by gender and division below.

Table 4.4: Number of respondents by Gender and Division.

Division	General High School		Madrasah		Technical Institute		Total	
	Male	Female	Male	Female	Male	Female	Male	Female
Dhaka	115	102	85	48	48	10	248	160
Chittagong	115	82	113	47	28	9	256	138
Rajshahi	90	77	90	36	21	7	201	120
Khulna	115	91	95	39	24	6	234	136
Sylhet	110	87	20	28	14	9	144	124
Barisal	90	77	37	17	21	8	148	102
Rangpur	101	82	30	28	12	6	143	116
Mymensingh	99	67	20	17	19	8	138	92
Total	**835**	**665**	**490**	**260**	**187**	**63**	**1512**	**988**

Source: ICT-based class and online class in Covid period survey in secondary level institutions, May 2022.

The above analysis and the data of Table (4.4) show clearly that the distribution of respondents of surveyed institutions was more or less similar by percentage and gender. But the number varied by gender and division because of the variation of sample size. The male sampled teachers were higher in number than that of the female sampled teachers, with some little exception.

4.1.3 Number of Head Teachers and Assistant Teachers

This study included mainly ICT training recipient assistant teachers, and partially some head teachers of the sampled institute. The ratio of the head teacher to the assistant teacher was 1:4. Thus the assistant teachers were 2000, and the head teachers were 500. The table below shows the ratio of the head teachers to the assistant teachers.

4.1.4 Number of Teachers by educational qualification

A total of 2500 teachers were covered under the presemt study in secondary educational institutions (Madrasa, General Schools, and Technical Institute). The information of the survey shows that the highest number of teachers (62.4%) were graduates, while, only 37.6% were post-graduate. Further, over 48% of the sampled teachers had a professional degree B.Ed. followed by about 31.4% had M.Ed. degree and 20% of the teacher had no professional training. Table (4.5) shows the distribution of teachers by education and training below:

Table 4.5: Distribution of Education degree and Professional Degree holding Informant Teachers.

Class	No. and percent of Respondent teachers holding Education degree	
	No. of teacher	% of Teacher
Graduate	655	62.4
Post Graduate	395	37.6
Total:	1050	100.0
Have B.Ed. Degree	510	48.6
Have M.Ed. Degree	330	31.4
Have no professional training	210	20.0
Total:	1050	100.0

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

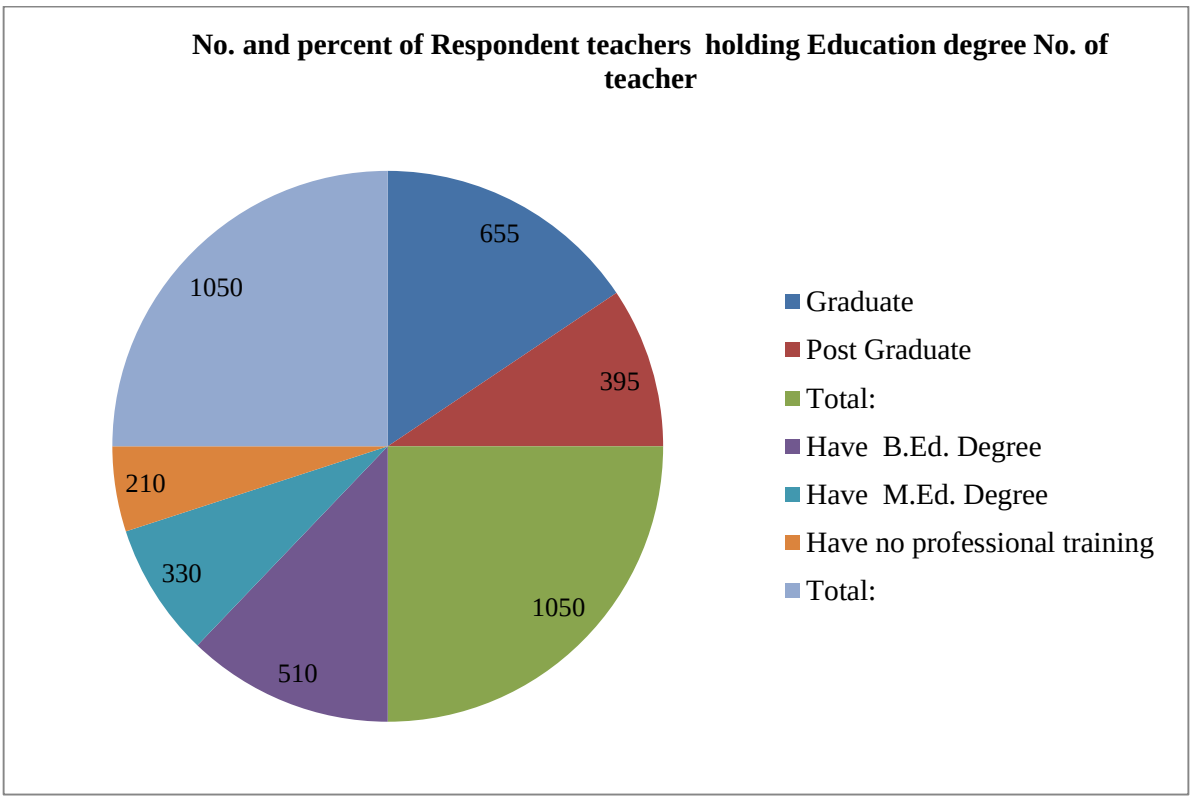


Figure 4.2: Distribution of Education degree holding informant Teachers

From the above table it became apparent that most of the teachers (80%) had professional degrees.It is expected that these teachers to perform better pedagogically and improve the quality of secondary level education. Analysis and interpretation of the foregoing paras, tables, figures and charts in this chapter revealed the present scenario of teachers, Head teachers having required educational and professional degrees and also training on ICT. It needs to be mentioned here that secondary educational institutions have been covered by the study

maintaining an equal ratio based on the total number of institutions. Under eight divisions, institutions have been selected following stratified and purposive sampling procedures. Both gender *i.e. male*' and female' teachers of which ratio of male and female teachers is 32%: 68%, were covered.

4.1.5. Duration of teaching experience among the interviewed teacher

Analysis of the data about the teaching experience of the teachers included in the quantitative data collection part shows that most of the teachers who received ICT training have more than 6-10 years of teaching experience. The number of teachers having teaching experience of over 15 years was very low. The table below shows the duration of teaching experience of ICT training Recipients.

Table 4.6: Distribution of Teachers' years of teaching experience.

Experience range	No. of teacher received ICT training			
	Teacher (Female)	Teacher (Male)	Total No. of Teacher	% of Teacher
1-5 years	300	10	310	29.5
6-10 years	438	15	453	43.1
11-15 years	160	20	180	17.1
15+ years	87	20	107	10.2
Total:	985	65	1050	100.0

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

The above table (4.6) shows the range of experiences among the ICT training recipient teachers: 43%, teachers have 6-10 years of experience, and the teachers having 11-15 years of experience are in the second position (17.1) while 29.5% of teachers have five years or less experience; and only 10% of teachers have 15 years of experience. This shows that mostly the young teachers have received ICT training.

4.1.6. Geographical diversity of the institutions surveyed under the study

This study covered diversified geographic location in selecting the sampled secondary institutions (Vocational, Madrasha, and General High Schools). In addition to the plains, the Haur, Char, hill, etc. area were included in this study. Geographical diversity is described in the table (4.7) below—

Table 4.7: Distribution of Geographical diversity of the institutions were covered in the study.

Institution types		Number of Institution								Total	(%)
		Urban				Rural					
		Plain	Haur	Char	Hill	Plain	Haur	Char	Hill		
School		144	0	0	0	123	15	21	7	310	62
Madrasa		27	0	0	0	67	14	15	1	124	24.8
Technical		21	0	0	1	16	11	13	4	66	13.2
Total:	**N**	**192**	**00**	**00**	**01**	**206**	**40**	**49**	**12**	**500**	**100.0**
	%	**38.4**	**0**	**0**	**0.2**	**41.2**	**8**	**9.8**	**2.4**	**100**	**--**

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

According to the table (4.5) above, among the institutions studied, 62% were School, 24.8% were Madrasa and 13.2% were Technical Institute. In terms of geographical location, 38.4% of these institutions were in urban-plain areas, 0.2% were urban hill areas, 41.2% were rural plain areas, 8% were rural haur areas, 9.8 were rural char area and 2.4% were in rural hill.

4.2. Findings of following the research objectives

4.2.1. OBJECTIVES-1: TO EXPLORE HOW TEACHERS ARE GETTING ACCESS TO ICT DEVICES AND CAPACITY BUILDING INITIATIVES

4.2.1.1. Availability of ICT devices in Institutions

As per study data, four types of ICT devices are available in the secondary educational institutions. The available ICT devices included Laptop, Desktop, Multimedia projector, Printer, and internet connecting device. However, nearly all necessary ICT devices of secondary institutions are mainly used in Official/administrative work. They are rarely used in teaching and learning. The internet modem was found to be mainly used in the urban areas. Generally, ICT devices are rarely used in the institutions of rural areas. The internet facility was available in a few institutions of rural areas, though the number was negligible.

This chapter has discussed the overall availability of ICT devices used in Secondary Educational Institutions by Divisions. It should be noted here that at least 14 types of different ICT devices (*Desktop computer, Laptop, Multimedia projector, Printer, and Internet connection*) are necessary to conduct a successful ICT-based teaching-learning. These devices are also useful for conducting online classes. According to the information provided by the teachers, the status of ICT devices of 500 educational institutions included in this study has been highlighted here. The table-4.8 shows the availability of ICT devices in institutions covered under the study.

Table-4.8: Availability of ICT devices in Sampled Educational Institutions.

Types of ICT devices	No. of Institutions based on number of ICT devices					No. of total institutions
	1 set	2 sets	3 sets	4 sets	More than 4 sets	
Desktop computer	187	205	45	59	04	**500**
Laptop	102	389	04	00	00	**495**
Multimedia projector	81	417	02	00	00	**500**
Printer	07	492	00	00	00	**499**
Internet connection	465	00	00	00	00	**465**

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

The inclusion of ICT in education requires the availability of ICT devices. This study shows that 100 % of secondary educational institute have Desktop computer and Multimedia Projector. ICT devices. 99% of institutions have laptops, 99.8% of institutions have printer facilities, and 93% of institutions have internet connectivity. Though these are not enough to ensure 100% coverage to conduct ICT based teaching-learning for all learners, these are helpful for meaningful productive work.

The study found differences in the availability of ICT devices in sample institutes among different divisions. The table-4.9 below shows the division wise distribution of ICT Devices in institutions.

Table 4.9: Division wise distribution of ICT Devices in Institutions.

Types of ICT devices	No. of institutions have not ICT devices								Total
	Dhaka	Chitt.	Rajshahi	Khulna	Sylhet	Barisal	Rangpur	Mym.	
Desktop computer	00	00	00	00	00	00	00	00	**500**
Laptop	00	01	00	01	00	02	00	01	**495**
Multimedia projector	00	00	00	00	00	00	00	00	**500**
Printer	00	00	00	00	00	00	01	00	**499**
Internet connection	01	06	02	02	08	11	02	03	**465**
Total:									

Source: Survey data on Integration of ICT in secondary level institutions, May 2022. *Note: *Total survey institutions 500 and each institute has some ICT device.*

Division-wise analysis revealed that the major ICT devices (Desk-top, Laptop, multi-media, internet connection, printer) were available in the secondary educational institutions in all the

8 divisions covered under the study. Printer, laptop and internet (related to online teaching-learning) are available but limited within a few institutions.

4.2.1.2. Status of ICT Device (Functional or non-functional)

Out of total institutions equipped with ICT Device, Desktop computer and Internet connection of 100% institution devices were found functional, while, only Laptop of 3.24% institutions were out of order/non-functional, and Multimedia projector of 2.43 institution were out of order/non-functional, Internet connection in 1.41% institutes were out of order/non-functional. The number of institutions having necessary ICT devices, ICT device in functioning and CT devices inactive described in table 4.10 below.

Table-4.10: Availability of ICT devices in sampled Educational Institutions.

Types of ICT devices	No. of institutions having necessary ICT devices	No. of institute having all the ICT device in functioning	No. of institute having ICT devices inactive	% of institute having all the ICT device in functioning
Desktop computer	500	500	00	100
Laptop	495	479	16	96.76
Multimedia projector	500	483	17	97.57
Printer	499	497	02	99.59
Internet connection	465	465	00	100

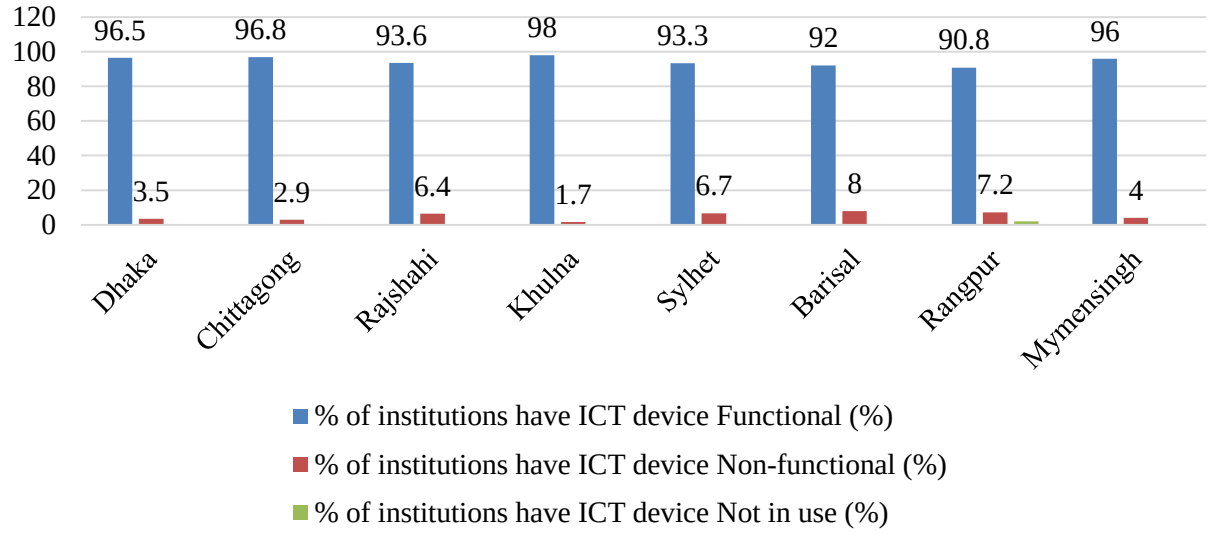
Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

But this overall information is not a reflection of the actual situation. Because, some times most of institutions uses their ICT device for official/administrative purpose. ICT based teaching – learning depends on the freeness of the existing devices.

The introduction of ICT in education requires the availability of ICT devices. This study shows that all (100%) secondary educational institutions have ICT devices. However, 92.5 % of ICT devices are used actively, 7.3% of ICT devices are defunct.

However, rates of the functional and non-functional ICT devices varied from division to division. The distribution of functional ICT device varied from 66.8% to 96.0% by divisions. Hundred percent functional ICT devices were not found. Division-wise functional status revealed that Khulna 98% ranks highest in ICT device functionality followed by Chittagong (96.8%), Dhaka 96.5%, Mymensing 96%, Sylhet (93.3%), Barisal 92% and Rangpur 90.8%. The graph (4.4) shows the functional status by division.

Figure- 4.4. Division-wise Functional status of ICT devices



Source: Survey data on Integration of ICT in secondary level institutions, May 2022..

4.2.1.3. Ownership of ICT Device

It has been found that all sampled teachers (99%) are the owners of Smart Phones and Mobile data (counted as ICT devices in this study). Although personal to the teachers, these are used by the teachers for teaching and learning. Devices other than Smart Phones and Mobile data are owned by the institution but they have been purchased/collected from external sources/ funds besides institutions' own funds/source. These have been obtained from the LGSP and ADP funds of the local government in addition to the assistance of various projects of the Department of Education, and the A2I project. The table (4.11) below shows the sources from where the schools obtained these devices:

Table-4.11: Division-wise sources of ICT devices found in educational institutions.

Divisions	% of sampled institutions assemble their ICT devise from				
	Different Project of DSHE	A2I	Institutions itself	ADP	LGSP
Dhaka	32	13	35	19	1
Chittagong	31	20	39	4	6
Rajshahi	12	16	49	21	2
Khulna	21	13	51	10	5
Sylhet	31	23	41	1	4
Barisal	29	15	28	11	17
Rangpur	21	7	52	6	14
Mymensingh	22	17	45	13	3

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

According to the table above the ICT Device supplied/installed by a number of agencies like local government-Union Parishads (UPs) and Upazilas (UZs), Access to Information (A2I), Education Department, and the institutions itself. Of those, the survey found that the highest number of ICT Devices installed by the institutions itself e.g 52% in Rangpur, 51% in Khulna division, 49% in Rajshahi, 45% in Mymensing, 41% in Sylhet, 39% in Chittagong, 35% in Dhaka and 28% in Barisal respectively.

4.2.1.4. Type of ICT facilities use in conducting teaching learning (multimedia class) in a week.

Teaching and learning through multimedia projectors is gaining popularity day by day in the secondary level education system of Bangladesh. Educational institutions are trying to teach multimedia in spite of problems like lack of devices, lack of a suitable environment for conducting multimedia session in the classroom, etc. The frequency of ICT-based lessons in each class at the surveyed educational institutions was examined in this study.

Table-4.12: Frequency of Conducting ICT Device based Teaching Learning within a week.

SL	% of institutions conducts at least one ICT-based teaching for all classes					Total
	Division	6 days in a week	3-5 days in a week	1-3 days in a week	Never used in a week	
1.	Dhaka	30	43	27	00	100
2.	Chittagong	11	45	44	00	100
3.	Rajshahi	19	44	37	00	100
4.	Khulna	09	39	52	00	100
5.	Sylhet	11	30	59	00	100
6.	Barisal	14	46	40	00	100
7.	Rangpur	10	41	49	00	100
8.	Mymensingh	08	40	52	00	100

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

From table 4.12, it has been found that 100% of the institutes conduct ICT-based teaching and learning at each class some number of times a week. At least 30% of the institutions in Dhaka division conduct at least one session for each class every day of the week. This rate in Rajshahi division 19%, Barisal division 14%, Chittagong is 11% , Khulna division 09%, Sylhet division 11%, Rangpur division 10% and Mymensingh division 08%.

4.2.2. OBJECTIVES-2: TO EXPLORE HOW TEACHERS ARE GETTING ACCESS TO ICT DEVICES AND CAPACITY BUILDING INITIATIVES

4.2.2.1.Number of Teachers received ICT training

This study also investigated whether secondary level teachers have received ICT training. It revealed that 43.4 % (1085 out of 2500) of secondary school teachers received ICT training. Among them 78.25% (849 out of 1085) received training from BANBEIS. The status of

division-wise ICT training received by teachers teacheing in secondary level education is presented in the table-4.13 below.

Table 4.13: Number of Respondents (Teachers) received ICT training by designation.

Division	No. of the Teacher received ICT Training					
	From other institutions outside of BANBEIS			From BANBEIS		
	H.T.	A.T.	Total	H.T.	A.T.	Total
Dhaka	31	120	151	36	75	111
Chittagong	30	122	152	32	85	117
Rajshahi	35	127	162	30	95	125
Khulna	32	87	119	25	65	90
Sylhet	24	97	121	41	99	140
Barisal	27	77	104	45	57	102
Rangpur	37	100	137	26	52	78
Mymensingh	17	122	139	32	54	86
Total:	**233**	**852**	**1085**	**267**	**582**	**849**

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

Some of the ICT trained teachers have been trained several times. The following table -4.14 presents the data of teachers who have undergone multiple training.

Table 4.14: Number of Respondents (Teachers) by designation received ICT training more than one time.

Division	% of teachers trained more than one time		
	H.T.	A.T.	Total
Dhaka	21.6	78.4	100.0
Chittagong	17.0	83.0	100.0
Rajshahi	19.4	80.6	100.0
Khulna	21.3	78.7	100.0
Sylhet	15.2	84.8	100.0
Barisal	13.7	86.3	100.0
Rangpur	13.7	86.3	100.0
Mymensingh	13.0	87.0	100.0

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

4.2.2.2. Description of utilizing the obtained skills of ICT in different area of teaching learning.

Trained teachers use the skills acquired not only in teaching and learning but also in other educationally related tasks. The table-4.15 below shows the utilization skills acquired by trained teachers as a result of ICT training.

Table-4.15: Data on ICT uses in the cases of teaching learning.

Serial no	Use of ICT for	Use of ICT in a week (on average in %)
1.	Preparation of Lesson Plan	05
2.	Conducting classroom activities	79
3.	Learning Assessment	03
4.	Other work relating to support class deliberation	13

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

According to the table 1.15, this study found that in 79% of secondary level educational institutions, the ICT use was in conducting classroom activities followed by 5% for lesson planning, and 3% for learning assessment. In other cases, the use of ICT was 13%.

However, the study investigated of the classes conducted digitally, which subjects were given priority. It can be said that the number of classes on General science was the highest and the number of classes on religious education was the lowest. The finding obtained through the study has been focused in the table below.

4.2.2.3. Subject gets priority in conducting digital session at institutions under research

Table-4.16: Subject gets priority in conducting digital session.

Subject	Priority given in conducting ICT based session
English	8.7%
Mathematics	5.7%
General Science	17.9%
Social Science	4.7%
Religion Study	0.3%
Physics	0.3%
Chemistry	0.3%
Biology	0.5%
ICT/ Agri. Studies	16.3%

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

The table 4.16 above shows that digital classes regarding General Science got top priority (17.9%) in the study-covered institutions. The ICT & Agriculture Studies came second (16.3 %). Then Mathematics with 5.7% came next, Biology 0.3%, Physics 0.3%, Chemistry & English 8.7%, Social Science 4.7%, and Religion Study of 0.3%.

4.2.2.4.Benefit of using ICT than traditional method of teaching and learning

This study seeks to determine the ultimate outcome of ICT integration. This shows that in 21 cases, ICT has been playing a positive role in the secondary level education of Bangladesh. The following table 4.17 shows the views of teachers on the benefits of ICT integration in secondary level education of Bangladesh.

Table 4.17: Informants Opinion on Benefit of using ICT.

Area of ICT application in teaching and learning	Teacher opinion	
	N	%
Preparation of subject-based lesson plan	350	5.9
Arrangement for Informing the time table to the students	325	5.5
To make teaching and learning participatory	225	3.8
To render teaching and learning joyful	275	4.6
To know and discuss the queries of the students to ensure their understanding	450	7.6
Assign regular homework and assess using online	215	3.6
Make learning assessment at the end of a lesson	326	5.5
To plan remedial measures for weak learners on the basis of learning assessment	414	7.0
Ensure the quality of lesson plan	359	6.1
Ensure required speed of internet	258	4.4
Ensure supply of ICT device for each student to attend online session	256	4.3
The ability of the teacher to address technological issues during session	153	2.6
Rate of attendance of the students in online sessions	465	7.8
Ratio of attendance of male and female students	325	5.5
Communication with absentee students and know the reasons of absence and mitigate related issues to connect the students	120	2.0
To ensure participation of students through online by using Zoom Aps, Google meet and WhatsApp and continue communication with them	134	2.3
Ensure lesson outcome of the students according to lesson objectives	257	4.3
To continue teaching and learning about selected lesson and consciousness about health through online session during and after Covid-19 pandemic	451	7.6
To provide instruction to the students about physical, mental/emotional health during and after Covid-19 pandemic	345	5.8
To get provide support from the Head Teacher and other teachers of the schools in conducting online session	228	3.8

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

4.2.3. OBJECTIVES-3: TO IDENTIFY CHALLENGES FACED BY THE TEACHERS TO ENSURE INTEGRATION OF ICT IN THE TEACHING-LEARNING PROCESS

4.2.3.1. Challenges faced by the teachers to ensure integration of ICT.

Several preconditions are strongly applicable in conducting ICT-based classes. e.g., uninterrupted power supply, teacher skills, internet connectivity, device adequacy, etc. Table 4.18 below summarizes the problems of conducting ICT-based classes based on the type of institution studied.

Table-4.18: Common challenges of using ICT in secondary level education institutes

Nature of challenges	General School		Madrasha		Technical Institute	
	N	%	N	%	N	%
Network problem	109	29.2	123	31.5	09	18
Insufficiency of device	103	27.6	122	31.2	04	8
Unresponsiveness of the students	69	18.5	55	14.1	00	00
Lack of electricity	59	15.8	70	17.9	07	14
Lack of Adequate skills of teachers/ Overload of teacher	33	8.8	21	5.4	00	00

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

4.2.3.2. Problems faced in using ICT Device

In response to facing problems in using ICT devices, most of the teachers informed that they did not face any problem in using ICT device, while only 35.8% of teachers mentioned problem in using ICT devices. Table (4.19) shows the division wise problems the teacher faced in using ICT device below:

Table 4.19: Problems faced by students in using ICT Device by divisions.

Division	% of institutions faced problems				
	Network problem	Insufficiency of device	Unresponsiveness of the students	Lack of electricity	Overload of teacher
Dhaka	31.5	68.5	4.9	19.4	17.6
Chittagong	34.2	65.8	7.5	22.9	13.9
Rajshahi	37.1	62.9	3.8	17.7	15.5
Khulna	48.2	51.8	6.1	24.5	10.7
Sylhet	32.2	67.8	8.6	16.4	19.9
Barisal	35.2	64.8	11.3	21.6	18.5
Rangpur	36.1	63.9	5.7	18.7	20.1
Mymensingh	32.1	67.9	9.4	23.8	11.8

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

The teachers mentioned almost similar types of problems in using ICT devices though the percentages varied to a significant extent. In case of whether they faced problems in using ICT devices, the responses from both the Head Teacher and Assistant teachers were almost the same. But, concerning facing the type of problems, the responses of the two groups varied significantly different. Besides, they mention other reasons like network disruption; the disinterest of students; power disruptions etc.

4.2.3.3. Inadequacy of the devices

In a country like Bangladesh inadequacy of devices in the secondary level institutions are not unexpected which have been reflected in the following table-4.20.

Table-4.20: Division-wise teachers' opinion regarding the inadequacy of the ICT device.

Divisions	(%) of Teachers provided the opinion		Total (%)
	Have enough multimedia projectors or laptop/desktop computers.	Don't have enough multimedia projectors or laptop/desktop computers.	
Dhaka	42.0	58.0	100.0
Chittagong	37.0	63.0	100.0
Rajshahi	39.0	61.0	100.0
Khulna	49.0	51.0	100.0
Sylhet	57.0	43.0	100.0
Barisal	46.0	54.0	100.0
Rangpur	48.0	52.0	100.0
Mymensingh	38.0	62.0	100.0

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

More than half of the institutions of 07 divisions (except Sylhet division) mentioned that they do not have adequate number of ICT devices.

4.2.3.4. Network disruption

Evidences suggest that Network disruption is a common problem all over Bangladesh. Following Table indicated that issue identified in the teachers opinions:

Table-4.21: Division-wise teachers' opinion regarding the disruption of Network.

Divisions	(%) of Teachers provided the opinion		Total (%)
	Have disruption of Network	Have not disruption of Network	
Dhaka	58.0	42.0	100.0
Chittagong	46.0	54.0	100.0
Rajshahi	52.0	48.0	100.0
Khulna	49.0	51.0	100.0
Sylhet	61.0	39.0	100.0
Barisal	47.0	53.0	100.0
Rangpur	68.0	32.0	100.0
Mymensingh	51.0	49.0	100.0

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

According to the teachers' opinion Chittagong, Barisal, Rajshahi, Mymensingh, Rangpur and Dhaka had to face Network disruption problems mainly due to power outages. having adequate facilities for internet connectivity like wifi, broadband connection, and modem, they are shut down due to load shedding of electricity.

4.2.3.5. Disinterest of the students

On the question of why students are not interested, division wise findings varied. Though reasons of 'not-interested in digital learning' were not investigated but future study may be carried out to identify the causes. It may be assumed that easy availability of on-line recreational and other cheap and socially unacceptable programs, blog, Facebook, YouTube, etc might have disrupted their attention on studying school subjects.

Table-4.22: Division-wise teachers' opinion regarding the disinterest of students.

Divisions	(%) of Teachers provided the opinion		Total (%)
	Students having interest in online classes	Students having no interest in online classes	
Dhaka	26.0	74.0	100.0
Chittagong	14.0	86.0	100.0
Rajshahi	21.0	79.0	100.0
Khulna	31.0	69.0	100.0
Sylhet	12.0	88.0	100.0
Barisal	27.0	73.0	100.0
Rangpur	23.0	77.0	100.0
Mymensingh	13.0	87.0	100.0

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

Regarding disinterest of the students in ICT use in classroom teaching-learning, teachers in Chittagong (14%) and Khulna division (31%) reported that their Institutions have highest number of students who have no interest in ICT usages.

4.4. Reflection of ICT integration in conducting the online classes in the COVID-19 situation.

The ultimate goal of ICT integration was to teach school students through ICT-based teaching and learning so that they can fully understand the learning competencies. Therefore, this study has tried to investigated what was taught practically in the class following the ICT training. In line with the specified objectives of this study, the findings are presented in two points, (1) how much reflection has occurred in the general situation, and (2) how much reflection has occurred in the COVID-19 situation.

4.3.2.1. Reflection of acquired skills in conducting the online classes in the general situation

It is evident that in recent times, the interest of secondary education institutions in conducting ICT-based classes has increased. Various government initiatives such as setting up school-based ICT labs, providing ICT devices, launching teacher-window *(Shikkhok Batayon)* web portals, rewarding teachers for creating the best content, etc. have brought about groundbreaking changes in digital classrooms management. Conduction of digital classes/sessions has started in the educational institutions involved in this study. Conducting Digital classes/sessions have been introduced in all classes (Class-VI to Class-X) and at least 05 (five) classes being conducted in a week in 30% of institutions, respectively at least 04 (Four) classes being conducted in a week in 34% of institutions, at least 03 (Three) classes being conducted in a week in, at least 02 classes being conducted in a week in 35.5% of institutions, and at least 01 (One) class being conducted in a week in 41.3% of institutions. The number of institutions conducting digital classes of more than 05 classes is 22.8%. The frequency of the digital session conduction is shown in the table (4.23) below.

Table-4.23: Frequency of the digital session conduct in normal situations.

Frequency of the digital session conduct	% of institute		
	School	Madrasa	Technical
01 sessions in a day	41.0	41.5	93
02 sessions in a day	46.0	25.0	88.7
03 sessions in a day	0.0	0.0	69.5
04 sessions in a day	0.0	0.0	51.4
05 sessions in a day	34.5	26.5	47.8
06 sessions in a day	18.5	27.0	42.9

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

4.3.2.2. Reflection of acquired skills in conducting the online classes in the COVID-19 situation.

The COVID-19 pandemic in Bangladesh is part of the worldwide pandemic of coronavirus disease caused by severe acute respiratory syndrome caused by coronavirus. The virus was confirmed to have spread in Bangladesh in March 2020. On March 16, 2020, the Government of Bangladesh declared closures to all academic institutions, dormitories, and coaching centers as well, considering the devastating spread of the coronavirus. With the growing public concern, the closure period got extended from time to time, and recently the closure was lifted.

The Bangladesh government initially introduced television-based online classes to continue the learning process among students. In addition to television and radio-based learning, teachers at the secondary level are instructed by the Directorate of Secondary and Higher Education to take online sessions. Since then, secondary school teachers across the country have been conducting online learning.

This study explored information on online learning during the Covid-19 period. As it turned out, no organization was able to ensure live online learning sessions. However, lesson-wise videos of class conduction were uploaded on specific websites of the institutes and notices have been provided among the students in 100% of the institutions. The following table (4.24) provides information on the matter.

Table-24: Frequency of conducting online classes in the Covid-19 period.

Frequency of the online digital session conduct	% of institute		
	School	Madrasa	Technical Institute
01 sessions in a day	100	100	100
02 sessions in a day	86	71	100
03 sessions in a day	80	64	100
04 sessions in a day	76	51	89
05 sessions in a day	67	34	73
06 sessions in a day	59	29	68

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

Online sessions during the COVID situations are being conducted in average 100% of the secondary level educational institutions. On average more than 06 classes are conducted in a week in 59% School, 29% Madrasa and 68% Technical institute. However, at least one session per day is held online in 100% schools, madrasas and technical institutes.

Thus, it was found that the number of online classes has increased during the Covid period, as well as the deviation among the subject-wise session has decreased. The practical situation is presented in the below Table-25.

Table-25: Frequency of conducting online classes in the Covid-19 period and after covid period.

SL	Types of institution	Online session during COVID period	Online session after COVID period
1.	School	100%	2%
2.	Madrasa	100%	00
3.	Technical Institute	100%	12%

Source: Survey data on Integration of ICT in secondary level institutions, May 2022.

The above table shows the number of online classes has decreased since COVID period. During the COVID period, an average of 100% institutions were conducted online classes in secondary education institutions, but after COVID it comedown.

4.4.4. Reflection of ICT training skills in assessing student's learning

Assessment of learning refers to strategies designed to measure and evaluate what students know, demonstrate whether or not they have met curriculum outcomes or the goals of their individualized programs, or certify proficiency and make decisions about students' future programs or placements. In the case of secondary level education in Bangladesh, two types of assessment are generally followed. (1) Formative assessment, and (2) Summative assessment.

Formative assessment: Formative assessment refers to assessments that provide information to students and teachers that are used to improve the gaps in teaching and learning. These are often informal and ongoing, though they need not be. Data from summative assessments can be used in a formative way.

Summative assessment: Summative assessment refers to the cumulative assessments, usually occurring at the end of a unit or topic coverage, that intend to capture what a student has learned, or the quality of the learning, and judge performance against some standards. Although we often think of summative assessments as traditional objective tests, this need not be the case. For example, summative assessments could follow from an accumulation of evidence collected over time, as in a collection of student work.

No institution in the research area has assessed the learning of students through ICT. **Especially during the Covid period, no assessment was made.** However, ICT devices have been used in various ways to assess the learning of students before Covid situation (in normal situation).

Chapter Five

Findings, Challenges and Limitation of the study

5.1. Introduction

As per study design, a total of 500 educational institutions among which 60% general secondary schools, 30% Madrasas, and 10% Technical institute were selected for carrying out this study. These were under the selected 32 Upazilas, of 16 districts in 08 administrative divisions. Among the 500 secondary institute, Head Teacher from each institute (500), and 2000 Assistant teacher (500×4) have been interviewed. Thus a total of (500+2000) 2500 teachers have been interviewed.

Besides 72 KIIs, 16 FGDs were used to collect data and information regarding ICT integration in the sample educational Institutions in 08 divisions.

Analysis and interpretation of data collected from the secondary level educational institutions in the previous chapters has provided the Key major findings.

5.2 Major/ Key Findings are as follows

a) 100 % of secondary educational institute have ICT devices. Among them 99% of institutions have laptops, 99.8% of institutions have printer facilities, and 93% of institutions have internet connectivity.Though these are not enough to ensure 100% coverage to conduct ICT based teaching-learning for all learners,

b) Four major ICT ddevices in studied institutions i.e. Desk-top, Laptop, multi-media, internet connection and printer were available in the secondary educational institutions in all the 8 divisions covered under the study. Out of total institutions equipped with ICT Device, Desktop computer and Internet connection of 100% institution devices were found functional, while, Laptop of 3.24% institutions were out of order/non-functional, and Multimedia projector of 2.43 institution were out of order/non-functional, Internet connection in 1.41% institutes were out of order/non-functional.

c) A total of 92.5 % of ICT devices in studied institutions are used actively, 7.3% of ICT devices are defunct and 0.2% of ICT devices are yet to be used. However, rates of the functional and non-functional ICT devices varied from division to division. The distribution of functional ICT device varied from 66.8% to 96.0% by divisions. Hundred percent functional ICT devices were not found. Division-wise functional status revealed that Khulna 98% ranks highest in ICT device functionality followed by Chittagong (96.8%), Dhaka 96.5%, Mymensing 96%, Sylhet (93.3%), Barisal 92% and Rangpur 90.8%.

d) All (100%) of secondary educational institutions have ICT devices. However, 92.5 % of ICT devices are functional, 7.3% of ICT devices are non-operational.

e) Division-wise functional status revealed that Mymensing (96.0%) ranks highest in ICT device functionality followed by Sylhet (93.3%), Barisal 92.0% and Dhaka 91.5%. Distribution of ICT Device not in use varied from 1.7% to 32.9%. The specific number of ICT Device not in use by division—Chittagong ranked highest 32.9%, respectively Rajshahi 11.2% and Rangpur 10.4%.

f) ICT Device supplied/installed by a number of agencies like local government-Union Parishads (UPs) and Upazilas (UZs), Access to Information (A2I), Education Department, and the institutions itself. Of those, the survey found that the highest number of ICT Devices installed by the institutions itself e e.g 52% in Rangpur, 51% in Khulna division, 49% in Rajshahi, 45% in Mymensing, 41% in Sylhet, 39% in Chittagong, 35% in Dhaka and 28% in Barisal respectively.

g) This study also investigated whether secondary level teachers have received ICT training. It revealed that 43.4 % (1085 out of 2500) of secondary school teachers received ICT training. Among them 78.25% (849 out of 1085) received training from BANBEIS.

h) shows that digital classes regarding General Science got top priority (17.9%) in the study-covered institutions. The ICT & Agriculture Studies came second (16.3 %). Then Mathematics with 5.7% came next, Biology 0.3%, Physics 0.3%, Chemistry & English 8.7%, Social Science 4.7%, and Religion Study of 0.3%.

i) More than half of the institutions of 07 divisions (except Sylhet division) mentioned that they do not have adequate number of ICT devices.

j) According to the teachers' opinion Chittagong, Barisal, Rajshahi, Mymensingh, Rangpur and Dhaka had to face Network disruption problems mainly due to power outages. having adequate facilities for internet connectivity like wifi, broadband connection, and modem, they are shut down due to load shedding of electricity.

k) Regarding disinterest of the students in ICT use in classroom teaching-learning, teachers in Chittagong (14%) and Khulna division (31%) reported that their Institutions have highest number of students who have no interest in ICT usages.

l) The number of online classes has decreased since COVID period. During the COVID period, an average of 100% institutions were conducted online classes in secondary education institutions, but after COVID it comedown.

8.2. Challenges

Impelementation of ICT technology is comparatively a new phenomenon in Bangladesh particularly in the sphere of education. The programme to include ICT in secondary education is comparatively new. As a result, the system suffers from many inadequacies. The effective

integration of ICT in education is a complex and multifaceted process. The appropriate use of ICT expands access to education, strengthens the relevance of education to highly digital work environments, and raises educational quality (Tinio, 2003). Kimble (1999) shows that technology can result in increased student self- confidence and eagerness to learn. Balanskat, Blamire, & Kefala (2006) presents that ICT can impact positively on students' educational performance, motivation, attention, collaboration, and communication and process skills. On the other hand, it shows considerable evidence regarding the impact of ICT on teachers' increased enthusiasm, efficiency, and collaboration. Newhouse (2002) reported positive impacts of ICT on curriculum, pedagogy, students' learning, and learning environments. It also provided evidences on improvements in active learning, productivity, motivation, higher level thinking, independence, collaboration, and overcoming physical disabilities with the effective integration of ICT in the classrooms. Newhouse, Trinidad, & Clarkson (2002) also noted an effective integration of ICT in the classrooms enables teachers to adopt a balanced pedagogical approach between teacher- centered instruction and learner- centered collaborative environment.

- The main challenge to introduce and implement ICT technology in secondary education is the traditional techniques and strategies used by the teachers in conducting teaching and learning in the classroom. Still, the students mainly try to learn various lessons by memorizing as the teachers also use lecturing or question and answer method to teach. As a result, students do not learn anything because they cannot retain anything that they learn. Such an environment never facilitates introduction of a complex technology like ICT As the environment of lecturing on the part of the teachers along with memorizing on the part of the students will surely diminish strong will of the teachers and students to resort to the new strategy of learning..
- Secondary education system suffers from lack of adequate teacher training programs on the effective integration of ICT in teaching and learning. Although trainings on ICT use in classroom situation has been planned and implemented, those are not enough as a large part of the teachers are left out.
- Poor English language proficiency among school teachers that mainly hinder the use of World Wide Web. Proficiency in English language is a prerequisite for proficiency in ICT impelementation in classes as all the web pages that provide required information are all written in English.
- Lack of connectivity especially in remote, rural, and disadvantaged areas. Connectivity of Internet using Broadband or Modem is still a serious problem in Bangladesh even in the urban area. The situation in the rural area is more critical.
- Lack of awareness and resistance due to poor attitudes and motivation towards ICT among teachers and principals.
- Secondary education system suffers from lack of adequate teacher training programs on the effective integration of ICT in teaching and learning. Although trainings on ICT use in

classroom situation has been planned and implemented, those are not enough as a large part of the teachers are left out. Quality of the present

- Poor English language proficiency among school teachers that mainly hinder the use of World Wide Web. Proficiency in English language is a prerequisite for proficiency in ICT impelementation in classes as all the web pages that provide required information are all written in English.
- Lack of teacher guides, resource books, and model question papers to support the curriculum.

8.3. Limitation of the study

Samahar has engaged an experienced group of Researchers and Research associates who conducted the research with all sincerity and commitment. There is no visible gap in conducting e study, However, two things slightly affected the study. One is shortage of time.

There was hurry in every part of activities. Secondly, after Covid-19 schools were not still ready to continue normal school activities with an open mindset. Sometimes it was felt during data collection that respondents found it difficult express their mind.

Chapter Six

Recommendations and Conclusion

6.1 Recomendation

The Ministry of Education is the main agency for providing ICT training through BANBEIS. The study collected data from BANBEI's ICT-training recipient teachers as well as untrained teachers who are employed in secondary education institutions. A total of 2500 teachers were interviewed and among them, 500 were head teachers and 2000 were subject based teacher. Based on the findings as have been found in the study, the study makes the following recommendations:

We understand that if the quality of Secondary education is achieved, it will surely help accomplish the goal of education and thereby the goal of achieving a developed country status will come true. It is also true that such transformation cannot be accomplished by tomorrow, it will need considerable time, energy and commitment as well as support of policy, adequate budgetary provision and a realistic plan. So it is recommended that a comprehensive master plan may be prepared with the objective of integrating ICT in Secondary education in Bangladesh providing a archetypal umbrella of support from all the relevant agencies.

In line with globalization and the information highway, the Bangladesh education system has planned to educate students as the future workforce. They should be technology- savvy, innovative and conversant in technical know-how (Ghavifekr & Sufean, 2011). This is to enable the nation to be creative and competitive for the current globalization (Abas, 2009). Hence, the need for effective ICT-based curriculum is one of the main elements in strategic planning for ICT integration in the Bangladesh education system. This will ensure that technology investment decisions are optimized in the system and well planned . Most schools across the world are still in the early stage in adopting ICT and no records for significant improvements due to considerable barriers (Becta, 2005). Therefore, in order to make realistic and holistic solutions for the issues, factors that prevent the full use of ICT in schools must be clearly identified. The perceived barriers in schools may be divided into three broader categories: teacher level barriers, school level barriers, and system level barriers. The teacher level barriers incorporate factors related to teachers' attitudes and approach to ICT such as lack of ICT skills, lack of motivation and confidence on ICT, and inappropriate teacher training. School level barriers include those related to the institutional context such as the absence and/or poor quality of ICT infrastructure, limited access to ICT equipment, school's limited project-related experience, lack of experience in project- based learning, and absence of ICT mainstreaming into schools' strategies. The system level barriers are those related to the wider educational framework which mainly focuses on the rigid structure of the traditional schooling system. It is commonly accepted that the effective use of ICT requires more than just the

technology and competent teachers. Newhouse (2002) pointed out essential conditions for the effective implementation of ICT. Some of the most significant conditions are: proactive leadership, technical assistance, financial support, culture, policies and procedures, training and support, and provision of hardware and software infrastructure.

From the findings, it appeared that all the above barriers exist in the secondary education system of Bangladesh. The positive aspect is that the school community that include teachers, Head teachers, Management committee are all eager to create a positive environment in which ICT mechanism could be fully applied in classroom teaching and learning to produce students who would master required ICT technological skill. It is recommended that for addressing this issue quickly, simultaneous action plan for incorporating hardware as well as software devices would have to be undertaken. The actions are as follows:

- A master plan should be taken up to establish a computer lab in 25% secondary schools of rural area in the country.

- A massive programme for training of teachers on ICT should be initiated along with establishing computer lab in schools. Preliminary training should be based on such contents as computer literacy, preparation of digital content, presentation using Powerpoint. Subsequent training should be based on newer digital technologies related to computers and the Internet, which enable set of powerful tools for educational change and reform. Once the teachers are conditioned in the ICT environment, their attitude to using ICT technology in teaching and learning will register a change. Then ICT initiative could integrate innovative ICT tools to support school practices. Technologies like shared software, video conferencing, digital imaging and editing facilities, video walls for image projection, and online- learning communities may taken up in the training. Once teacher receive training on these areas, they would be interested to strategies creating and disseminating knowledge more effectively. Further, chat and instant messaging, virtual art gallery, and virtual museum are tremendous information sharing technologies that could be used in schools. Livetext is another new technology that allows teachers to put up content on a web page and enables online classes. Virtual learning systems are useful tools to store information digitally. Interactive whiteboards transform traditional black boards into an entirely different interactive teaching tool. All these new techniques should be gradually introduced in the training so that teachers take a strong step to use all these techniques in the classrooms.

- Teachers' reluctance to include ICT as a tool to improve the qulity of teaching and learining is due to that fact they are not confident about the various and diverse techniques of application of ICT in the classroom. In fact, there are a number of deterrent factors like indifference of Headteachers/Management committee to solve immediately some relevant issues, lack of proper internet network and the weak connectictivity.It is strongly

recommended that all the secondary schools should be equipped with necessary mechanism to ensure uninterrupted connectivity of internet. This will take some time but the initiative could be completed in the next 5 years.

- In our schools teachers still prefer to use lecture method as teaching technique that compels the students to memorise the lessons. Using lecture method or guiding students to memorise does not need much effort or time on the part of the teachers. This is one of the reasons for the teachers to avoid use of ICT in lesson delivery.This study recommends that besides training on ICT, teachers should be provided training on using activity based learning strategies or differentiated learning strategies.

- Teachers' access to ICT is made limited by the reality that majority of the teachers don't have access to either laptop or desktop as well as modem. They may possess a smart phone but use of mobile data is even found to be costly. It is recommended that each teacher may be provided a soft loan so that s/he could buy a laptop and a monthly allowance of 500-1000 taka may be allocated to each teacher as expenses for using modem or mobile data.

- Numerous instructional design models are currently available to help teachers integrate ICT into a curriculum. Examples of these include: the ASSURE model (Analyse learners; State objectives; Select media and materials; Utilise media and materials; Require learner participation; Evaluate and revise), the ICARE (Introduce; Connect; Apply; Reflect; Extend) model and the systematic planning model. These models provide useful guidelines for incorporating ICT into teaching and learning from different perspectives. The training on ICT should include all these strategies.

- One important issue which was not covered in this research is the teachers' knowledge and skill in English. As the web pages and instructions are all provided in English language, teachers are needed to good knowledge and skill s in English. It is generally understood that our teachers are poor in English, steps should be taken to enhance their knowledge in functional English.

6.2. Conclusions

In the new Millennium, computer literacy of a nation will be one of the major determinants to measure the quality of education. However, successful integration of ICT in Bangladesh schools is challenged by number of major issues .A simple combination of hardware and software will not make integration naturally follow (Earle, 2002). Teachers need to plan thoughtfully before they start ICT integration into a curriculum. For instance, they have to choose the correct ICT tools for particular learning objectives or contexts, modify existing resources or develop new learning environments to engage specific groups of learners, or decide scaffolding strategies for student- centred learning.

Worldwide research has shown that ICT can lead to improved student learning and better teaching methods. A report made by the National Institute of Multimedia Education in Japan, proved that an increase in student exposure to educational ICT through curriculum integration has a significant and positive impact on student achievement, especially in terms of "Knowledge・ Comprehension" · "Practical skill" and "Presentation skill" in subject areas such as mathematics, science, and social study.

Information and Communications Technology (ICT) has gone through innovations and transformed our society that has totally changed the way people think, work and live (Grabe, 2007). As part of this, schools and other educational institutions which are supposed to prepare students to live in “a knowledge society” need to consider ICT integration in their curriculum (Ghavifekr, Afshari & Amla Salleh, 2012). In conjunction with preparing students for the current digital era, teachers are seen as the key players in using ICT in their daily classrooms. This is due to the capability of ICT in providing dynamic and proactive teaching-learning environment.

ICT has the potential in preparing students for life in the 21st century. Through learning ICT skills, students are ready to face future challenges based on proper understanding (Grimus, 2000). Bransford, Brown, and Cocking (2000) believe that ICT use can help students to develop the competencies needed for the current globalization. This is because ICT can help students to develop their skills, boost up their motivation and widen their knowledge and information (Grabe & Grabe, 2007; Hussain et al., 2011).

Reference

1. A baseline survey of Media Literacy among Secondary Students in Dhaka City, SACMID, 2018;
2. Annual Development Programme of the FY 2018-19, Bangladesh Planning Commission, 2018;
3. Annual Sector Performance Report, DPE, 2016;
4. ICT Competency Framework, UNESCO, 2018http://unesdoc.unesco.org/images/0026/002657/265721e.pdf ;
5. Incheon Declaration and Framework for Action for the implementation of Sustainable Development Goal 4, Korea, 2015;
6. In-depth Monitoring of Access to Information, Implementation Monitoring and Evaluation Division, Ministry of Planning, 2016;
7. In-depth Monitoring of Optical Fiber Cable Network Expansion in 339 Upazila, Implementation Monitoring and Evaluation Division, Ministry of Planning, 2017;
8. Information and Communication Technology Policy, Government of the People's Republic of Bangladesh, 2015;
9. Integration of Sustainable Development Goals into the 7th Five Year Plan, General Economics Division, Bangladesh Planning Commission, 2016;
10. Mapping of ministries by targets in the implementation of SDGs aligning with 7th Five Year Plan (2016-2020);
11. National Education Policy, Government of the People's Republic of Bangladesh, 2010;
12. National Student Assessment Report, 2017;
13. Non Formal Education Development Programme Document;
14. Secondary Education Development Programme Document ;
15. Seventh Five Year Plan FY2016-2021, General Economics Division, Bangladesh Planning Commission, 2015;
16. Situation Analysis of ICT and Mobile Based Literacy in Bangladesh, UNESCO, 2016;
17. Third Primary Education Development Programme Document;
18 Transforming our world: The 2030 Agenda for Sustainable Development, United Nations, 2016; Master Plan for Information and Communication Technology in Education (2012-2021); Government of the People's Republic of Bangladesh, 2012; DB (2008, November).
19 Sri Lanka: Secondary Education Modernization Project (SEMP). Completion report, Project Number 33245. Bailey, L., Day, C., Day, T., Griffin, A., Howlett, P., Kane, M., Kirk, C., McCullough, N., McKiernan, B., McMullen, T., Perfect, K., Ramsey, E., & Wood, R. (2004).
20 Using ICT in schools: Addressing teacher workload issues. ISBN 1 84478 341 3. PricewaterhouseCoopers. Balanskat, A., Blamire, R., & Kefala, S. (2006).
21 The ICT impact report: A review of studies of ICT impact of schools in Europe. Education and culture, European Schoolnet. Becta (2005),

22 Evidence on the progress of ICT in education. Available at http://www.Becta.org.uk/page_documents/rese arch/becta_review- feb05.pdf, Becta (2007).

23 Progress and impact of technology in education. Harnessing Technology Review. Available at http://www.partners.becta.org.uk/.../research/h arnessing_teaching_review07.pdf Condie, R., & Munro, B. (2007).

24 The Impact of ICT in Schools: A Landscape Review. Quality in Education Centre, University of Strathclyde. Eadie, G. M. (2000).

25 The impact of ICT on schools: classroom design and curriculum delivery. Winston Churchill Memorial Trust. Fluck, A. (2003).

26 Why isn't ICT as effective as it ought to be in school education? , ICT and teacher of the future: International Federation for Information Processing Working Group 3.1 and 3.3 Working Conference, 26- 31 January, Melbourne, Australia, pp.39- 41. ISBN 1 – 920682- 02- 3. Kimble, C. (1999, May).

27 The impact of technology on learning: making sense of the research. Mid- Continent Regional Educational Laboratory. Kumar, A., & Kumar, A. (2006).

28 IT based KM in Indian higher education: addressing quality concerns and setting the priorities right. Journal of Knowledge Management Practice, 7(3). Li, Y. (2007).

29 Education sector development programme. ADB TA 47 33 SRI, Final report, Vol 2(2). Muhammed, S. (2006).

30 Antecedents and impacts of knowledge management practices supported by information technology: An empirical study in manufacturing context. Research thesis (PhD), The University of Toledo. 11 115 Newhouse, C.P. (2002, December).

31 The impact of ICT on learning and teaching. Western Australian Department of Education. Newhouse, C.P., Trinidad, S., & Clarkson, B. (2002, December).

32 Quality pedagogy and effective learning with Information and Communication Technologies (ICT): a review of the literature. Companion document, Western Australian Department of Education. Ofsted (2004, May).

33 ICT in schools: the impact of government initiatives five years on. Ofsted Publication Center, Office for Standards in Education, United Kingdom. Tinio, V.L. (2003, May).

34 ICT in education. e- ASEAN Task Force, UNDP- Asia Pacific Development Programme (APDP). Tubin, D. (2007).

35 ICT implementation and school leadership: case studies of ICT integration in teaching and learning. Journal of Educational Administration, 41(2), 158- 170.

35. DR. PREMA BASARGEKAR & PROF CHANDAN SINGHAVI Integrating ICT in School Education: A Case of Pratham Info Tech Foundation, India.

38. ICT integration in Secondary Education in Bangladesh: A study of Policy and Practice:M M Imran Iqbal Imon 2021

39. Challenges and Barriers of ICT in Indian schools and the Role of Teachers: Himanshoo Kumar Sharma HOD, D. El. Ed Department, Al- Barkaat Institute of Education, Aligarh. 2021

Appendix:

Tools-1

তথ্যদাতা হিসাবে নির্বাচিত শিক্ষকগণের সাক্ষাৎকারের জন্য প্রশ্নমালা

Disclaimer

আসসালামুআলাইকুম। আমার নাম ----------। আমি 'সমাহার' নামক গবেষণা প্রতিষ্ঠান থেকে এসেছি। 'সমাহার' বর্তমানে BANBEIS এর জন্য একটি গবেষণা পরিচালনা করছে। এ গবেষণার উদ্দেশ্য হলো: বাংলাদেশের মাধ্যমিক শিক্ষাস্তরে ICT Integration কার্যক্রমের ইতিবাচক ও বাঞ্ছিত পরিবর্তনের বিষয়ে জানা এবং প্রশিক্ষণের কার্যকারিতা বৃদ্ধির জন্য সুপারিশ করা। এসব বিষয়ে আমরা আপনার মূল্যবান মতামত জানতে কিছু প্রশ্ন করবো। উল্লেখ্য, আপনার মতামত শুধুমাত্র গবেষণার কাজে ব্যবহৃত হবে এবং আপনার দেয়া তথ্য সম্পূর্ণ গোপন রাখা হবে। আপনার অনুমতি পেলে আমি তথ্য সংগ্রহের কাজ শুরু করতে পারি।

আপনার মূল্যবান সময় ও তথ্যের জন্য অগ্রিম ধন্যবাদ।

কেইস নং: | | | | |

শিক্ষা প্রতিষ্ঠানের ধরন: ১. বালক ২. বালিকা ৩. সহশিক্ষা

শিক্ষা প্রতিষ্ঠানের অবস্থান: ১. গ্রামাঞ্চল ২. শহরাঞ্চল ৩. মেট্রোপলিটন ৪. হাওড় অঞ্চল ৫. চরাঞ্চল ৬. পাবর্ত্য অঞ্চল

বিভাগ: ..... **কোড নং: .....**

জেলা: ..... **কোড নং: .....**

উপজেলা: ..... **কোড নং: .....**

স্কুলের নাম: ..... **কোড নং: .....**

ইআইআইএন নং: .....

সাক্ষাৎকার গ্রহণকারীর নাম: ..... **সাক্ষাৎকার গ্রহণের তারিখ: .....**

তথ্যদাতার পরিচিতিমূলক সাধারণ তথ্যাবলী

১. নাম: .....মোবাইল/ফোন নং: .....

২. লিঙ্গ: ১. পুরুষ ২. মহিলা

৩. শিক্ষাগত যোগ্যতা: ১) স্নাতক ২) স্নাতকোত্তর ৩) অন্যান্য -----(নির্দিষ্ট করুন)

৪. পেশাগত প্রশিক্ষণ: ১) বি.এড ২) এম.এড ৩) অন্যান্য ----- (নির্দিষ্ট করুন)

৫. এই শিক্ষা প্রতিষ্ঠানে আপনি কোন কোন বিষয়ে পাঠদান করে থাকেন ?
উত্তর: _____।

৬. এই প্রতিষ্ঠানে কত দিন কর্মরত আছেন? ----------দিন----------মাস----------বছর

৭. শিক্ষক হিসেবে মোট কর্মকাল? ----------দিন----------মাস----------বছর

অধ্যায়-১: বিদ্যালয়ে বিদ্যমান আইসিটি সুযোগ সুবিধা সংক্রান্ত সাধারণ তথ্যাবলী

৮. আপনার বিদ্যালয়ে আইসিটি ক্লাস পরিচালনার ক্ষেত্রে প্রয়োজনীয় সুযোগ, সুবিধা সম্পর্কে কিছু বলুন :

---

৯. আইসিটি ক্লাস পরিচালনার জন্য আপনার বিদ্যালয়ে কী ধরনের আইসিটি ডিভাইস সুবিধা রয়েছে ?

ক্রম	আইসিট ডিভাইসের ধরন	মোট কতটি	সচল কতটি	অসচল কতটি
ক.	ডেস্কটপ কম্পিউটর			
খ.	ল্যাপটপ			
গ.	ট্যাবলেট			
ঘ.	স্মার্ট ফোন			
ঙ.	মাল্টিমিডিয়া			
চ.	প্রজেক্টর			

১০. আইসিটি ক্লাস পরিচালনার জন্য আপনার বিদ্যালয়ে কী ধরনের নেটওয়ার্ক টুলসযুক্ত সুবিধা রয়েছে ?

ক্রম	আইসিটি নেটওয়ার্ক সুবিধার ধরন	মোট কতটি	সচল কতটি	অসচল কতটি
ক.	ব্রডব্যান্ড সংযোগ			
খ.	ওয়াইফাই			
গ.	মোবাইল ডেটা			
ঘ	মোডেম			

১১. আইসিটি ক্লাস পরিচালনার জন্য আপনার বিদ্যালয়ে কী ধরনের অবকাঠামোগত সুবিধা রয়েছে ?

ক্রম	আইসিটি ব্যবহারে অবকাঠামোগত সুবিধার ধরন	মোট কতটি	সচল কতটি	অসচল কতটি
ক.	কম্পিউটর ল্যাব			
খ	ডিজিটাল ক্লাসরুম			

১২. আইসিটি ক্লাস পরিচালনার জন্য বিদ্যমান আইসিটি ডিভাইস সুবিধার মালিকানা সম্পর্কিত তথ্য?

ক্রম	আইসিটি ডিভাইসের ধরন	বিদ্যালয়ের নিজস্ব ডিভাইস কতটি?	শিক্ষকের ব্যক্তিগত কতটি?	অন্য প্রতিষ্ঠান/ব্যক্তির কাছ থেকে পাওয়া কতটি?	অন্যান্য/ মতামত
ক.	ডেস্কটপ কম্পিউটর				
খ.	ল্যাপটপ				
গ.	ট্যাবলেট				
ঘ.	স্মার্ট ফোন				
ঙ.	মাল্টিমিডিয়া				
চ.	প্রজেক্টর				

১৩. আইসিটি ক্লাস পরিচালনার জন্য বিদ্যমান আইসিটি নেটওয়ার্ক সুবিধার মালিকানা সম্পর্কিত তথ্য?

ক্রম	আইসিটি নেটওয়ার্ক ধরন	বিদ্যালয়ের নিজস্ব ডিভাইস কতটি?	শিক্ষকের ব্যক্তিগত কতটি?	অন্য প্রতিষ্ঠান/ব্যক্তির কাছ থেকে পাওয়া কতটি?	অন্যান্য/ মতামত
ক.	ব্রডব্যান্ড সংযোগ				
খ.	ওয়াইফাই				
গ.	মোবাইল ডেটা				
ঘ.	মোডেম				

১৪. আইসিটি ক্লাস পরিচালনার জন্য বিদ্যমান আইসিটি ডিভাইস ও নেটওয়ার্ক সুবিধার অবকাঠামোগত মালিকানা সম্পর্কিত তথ্য?

ক্রম	আইসিটি ব্যবহারে অবকাঠামোগত সুবিধার ধরন	বিদ্যালয়ের নিজস্ব ডিভাইস কতটি?	শিক্ষকের ব্যক্তিগত কতটি?	অন্য প্রতিষ্ঠান/ব্যক্তির কাছ থেকে পাওয়া কতটি?	অন্যান্য/ মতামত
ক.	কম্পিউটর ল্যাব				
খ.	ডিজিটাল ক্লাসরুম				

অধ্যায়-২: গবেষণার উদ্দেশ্য ভিত্তিক তথ্যাবলী

গবেষণার উদ্দেশ্য-১: To explore how teachers are getting access to ICT devices and capacity building initiatives (শিক্ষকরা কীভাবে আইসিটি ডিভাইস এবং আইসিটি সক্ষমতা বৃদ্ধির উদ্যোগে কতটা সুবিধা ব্যবহার করতে পারছেন, তা অনুসন্ধান)

১৬। আপনার বিদ্যালয়ে যেসব আইসিটি ডিভাইস সুবিধা রয়েছে তা আপনি ক্লাস পরিচালনার ক্ষেত্রে কতটা ব্যবহার করতে পারেন?

ক্রম	আইসিটি ডিভাইসের ধরন	সপ্তাহে কতবার ব্যবহারের সুযোগ পান (গড়)				
		পাঠ পরিকল্পনা প্রণয়নের ক্ষেত্রে	পাঠ উপকরণ তৈরির ক্ষেত্রে	পাঠ পরিচালনার ক্ষেত্রে	মাঠ মূল্যায়নের ক্ষেত্রে	পাঠ সহায়ক অন্যান্য কাজের ক্ষেত্রে
ক.	ডেস্কটপ কম্পিউটর					
খ.	ল্যাপটপ					
গ.	ট্যাবলেট					
ঘ.	স্মার্ট ফোন					
ঙ.	মাল্টিমিডিয়া					
চ.	প্রজেক্টর					

১৭। আপনার বিদ্যালয়ে যেসব আইসিটি নেটওয়ার্ক সুবিধা রয়েছে তা আপনি ক্লাস পরিচালনার ক্ষেত্রে কতটা ব্যবহার করতে পারেন?

ক্রম	আইসিটি নেটওয়ার্ক ধরন	সপ্তাহে কতবার ব্যবহারের সুযোগ পান (গড়)				
		পাঠ পরিকল্পনা প্রণয়নের ক্ষেত্রে	পাঠ উপকরণ তৈরির ক্ষেত্রে	পাঠ পরিচালনার ক্ষেত্রে	মাঠ মূল্যায়নের ক্ষেত্রে	পাঠ সহায়ক অন্যান্য কাজের ক্ষেত্রে
ক.	ব্রডব্যান্ড সংযোগ					
খ.	ওয়াইফাই					
গ.	মোবাইল ডেটা					
ঘ.	মোডেম					

১৮। আপনার বিদ্যালয়ে যেসব আইসিটি ডিভাইস ও নেটওয়ার্ক অবকাঠামোগত সুবিধা রয়েছে তা আপনি ক্লাস পরিচালনার ক্ষেত্রে কতটা ব্যবহার করতে পারেন?

ক্রম	আইসিটি অবকাঠামোগত সুবিধার ধরন	সপ্তাহে কতবার ব্যবহারের সুযোগ পান (গড়)				
		পাঠ পরিকল্পনা প্রণয়নের ক্ষেত্রে	পাঠ উপকরণ তৈরির ক্ষেত্রে	পাঠ পরিচালনার ক্ষেত্রে	মাঠ মূল্যায়নের ক্ষেত্রে	পাঠ সহায়ক অন্যান্য কাজের ক্ষেত্রে
ক.	কম্পিউটর ল্যাব					
খ.	ডিজিটাল ক্লাসরুম					

১৯। শিখন-শেখানো প্রক্রিয়ায় আইসিটির ব্যবহার সম্পর্কিত কোনো প্রশিক্ষণ পেয়েছেন কি? (টিক চিহ্ন দিন)

হাঁ		না	

২০। উত্তর হাঁ হলে, শিখন-শেখানো প্রক্রিয়ায় আইসিটির ব্যবহারের মৌলিক দক্ষতা সম্পর্কিত কোন কোন বিষয়গুলোর উপর প্রশিক্ষণ পেয়েছিলেন, তা নিচের তালিকা থেকে টিক চিহ্ন দিয়ে চিহ্নিত করুন এবং সংশ্লিষ্ট ক্ষেত্রে মতামত দিন।

প্রশিক্ষণের বিষয়বস্তু (Training Content)	প্রযোজ্য ক্ষেত্রে টিক চিহ্ন দিন	অভিজ্ঞতা ব্যক্ত করুন	
		প্রশিক্ষণটি কোথা থেকে পেয়েছিলেন	প্রশিক্ষণটি কত দিনের ছিল
ICT বেসিক এবং ইহার উপাদান। ফাইল/ ফোল্ডার তৈরি			
এম এস ওয়ার্ড পরিচিতি, মেনু বার অপশন পরিচিতি (সিলেক্ট, কপি, মুভ, ডিলেট, কাট, এবং পেস্ট, সেইভ, এলাইনমেন্ট ইত্যাদি)প্রিন্ট সেটআপ			
অভ্র কিবোর্ড লেআউট পরিচিতি, অভ্র ফনেটিক্স, এক্সেরসাইসঃ নিজের প্রতিষ্ঠান সম্পর্কে একটি প্যারাগ্রাফ টাইপ করা। প্যারাগ্রাফ ফরমেটিং এবং টেবিল ইনসার্ট করা (লাইন স্পেছেইং এবং ইন্ডেন্টিং)			
ইন্টারনেট, ওয়েব ব্রাউজার, সার্চ ইঞ্জিন ব্যবহার করে ইমেজ ডাওনলোড করা (জেপিজি, গিফ, পিএনজি, আওটলাইন),ডাওনলোড এবং ছবি ইনসার্ট			
এম এস এক্সেলের সাথে পরিচিতি (সেল, সারি, কলাম, ওয়ার্কশীট, ওয়ার্কবুক, এডিটিং এবং সেভিং, ইনসার্ট, ডিলিট, সারি ও কলাম, র‍্যাপ টেক্সট, মারজ সেল, চার্ট) এক্সারসাইস—স্যালারি সীট			
এম এস পাওয়ারপয়েন্ট এর সাথে পরিচিতি; (নিউ স্লাইড), লেয়াউট, স্লাইড পরিবর্তন, ফরম্যাটিং। ইনসার্ট সেইপ, স্মার্ট আর্ট, টেক্সট বক্স, ওয়ার্ড আর্ট, চার্ট, টেবিল।			
ক্যাপশনের সাথে ছবি ইনসার্ট, হেডিং এবং এনিমেশন (এন্ট্রান্স এবং এক্সিট), ইমেজ এডিটিং (পেইন্ট এবং পাওয়ারপয়েন্ট ব্যবহারের মাধ্যমে), পাওয়ারপয়েন্টের মাধ্যমে ড্রয়িং করা			
ইউটিউব থেকে ভিডিও ডাউনলোড করা এবং কোনও ফ্রি (কোনও সফ্টওয়্যার ছাড়াই) ভিডিওediting tool দিয়ে ভিডিও edit করা			
পাওয়ারপয়েন্ট উপস্থাপনায় ভিডিও insert করা। পাওয়ার পয়েন্ট ব্যবহার করে সামগ্রীতে একটি group তৈরি করুন			
ইমেইল আইডি তৈরি করা। এটাচমেন্ট সহ ইমেইল করা , এবং রিসিভ করা (এটাচমেন্ট ডাওনলউড করা এবং সেইভ করা)			
গুগল সার্ভিসেস (গুগল ম্যাপ দিক নির্দেশনা, গুগল অনুবাদ, গুগল ড্রায়িভ, গুগল ফর্ম ,গুগল ডকুমেন্ট)			
মুঠোফোন অথবা ডেস্কটপ ব্যবহার করে জুম এর মাধ্যমে অনলাইন ক্লাস কিভাবে সম্পাদন করা যায়			
এডুকেশন পলিসি, ভিসন ২০২১, এসডিজি-৪, ভ্যালু এবং এথিক্স			
কন্ট্রোল প্যানেল, টাস্ক ম্যানেজার, ডিভাইস ম্যানেজার, ট্রাবলশুটিং ভাইরাস স্ক্যান। বিজয় থেকে ইয়ুনিকোড, ইয়ুনিকোড থেকে বিজয় কনভার্সন, ডিজিটাল কন্টেন্ট।			
বাংলাদেশ সরকারের বিভিন্ন গুরুত্বপূর্ণ ওয়েব সাইট ভিজিট করা			

২০.ক) প্রাপ্ত ICT প্রশিক্ষণে অংশগ্রহণ করে, শ্রেণি শিখন শেখানো পরিচালনার ক্ষেত্রে আপনার কি কি সুবিধা হয়েছে বলে আপনি মনে করেন?

(১) পাঠ পরিকল্পনা প্রণয়ণে

(২) পাঠ উপস্থাপনে

(৩) শিক্ষার্থীদের পাঠ অগ্রগতি মনিটরিং করার ক্ষেত্রে

(৪) পাঠ মূল্যায়নে

অন্যান্য (উত্তর:)_____

গবেষণার উদ্দেশ্য-২: To understand how they are using the training outputs in the classroom level and home-based learning: তারা (শিক্ষকগণ)কিভাবে শ্রেণীকক্ষে এবং বাড়িতে শেখার ক্ষেত্রে প্রশিক্ষণলব্ধ দক্ষতা প্রয়োগ করছে তা অনুধাবন

২১. বিদ্যালয়ে আপনি কোন শ্রেণিতে কী বিষয়ে পাঠদান করে থাকেন:

শ্রেণি	বিষয়ের নাম: বাংলা/ইংরেজি/গণিত/ বিজ্ঞান/সামাজিক বিজ্ঞান/ধর্ম ও নৈতিক শিক্ষা/অন্যান্য (সুনির্দিষ্ট)				
	১.....	২.....	৩.....	৪.....	৫.....
ষষ্ঠ					
সপ্তম					
অষ্টম					
নবম					
দশম					

২২. ICT ব্যবহারের মাধ্যমে বিদ্যালয়ে আপনি কোন শ্রেণিতে কী বিষয়ে শিখন শেখানো কাজ পরিচালনা করেন:

শ্রেণি	বিষয়		বিষয়		বিষয়		বিষয়		বিষয়	
	বিষয়ের নাম	সপ্তাহে কতদিন ক্লাস নিয়ে থাকেন	বিষয়ের নাম	সপ্তাহে কতদিন ক্লাস নিয়ে থাকেন	বিষয়ের নাম	সপ্তাহে কতদিন ক্লাস নিয়ে থাকেন	বিষয়ের নাম	সপ্তাহে কতদিন ক্লাস নিয়ে থাকেন	বিষয়ের নাম	সপ্তাহে কতদিন ক্লাস নিয়ে থাকেন
ষষ্ঠ										
সপ্তম										
অষ্টম										
নবম										
দশম										

২৩. প্রতিষ্ঠানে মাল্টিমিডিয়া অথবা প্রজেক্টর ব্যবহারের মাধ্যমে পাঠদান করেন?

উত্তর: হ্যাঁ_____ **না** _____

২৪. প্রতিষ্ঠানে আপনি মাসে কয়টি ক্লাসে শিখন শেখানো কাজ পরিচালনা করেন ?

উত্তর:_____টি।

২৫. অনলাইনে আপনি মাসে কয়টি ক্লাস নেন?

উত্তর: :_____টি।।

২৬. আপনি অনলাইন পাঠদান (Online Teaching) পদ্ধতিতে আপনি কোন শ্রেণিতে কী বিষয়ে শিখন শেখানো কাজ পরিচালনা করেন **?**

শ্রেণি	বিষয়ের নাম: বাংলা/ইংরেজি/গণিত/ বিজ্ঞান/সামাজিক বিজ্ঞান/ধর্ম ও নৈতিক শিক্ষা/অন্যান্য (সুনির্দিষ্ট)				
	১.....	২.....	৩.....	৪.....	৫.....
ষষ্ঠ					
সপ্তম					
অষ্টম					
নবম					
দশম					

২৭. অনলাইনে পাঠদানের ক্ষেত্রে আপনার বিদ্যালয়ের শিক্ষকেরা কী ধরনের বাঁধা/সমস্যার সম্মুখীন হয়েছেন?

(ক) নেটওয়ার্ক বিভ্রাট;

(খ) ডিভাইসের অপ্রতুলতা;

(গ) শিক্ষার্থীদের অনাগ্রহ;

(ঘ) বিদ্যুৎহীনতা;

(ঙ) অন্যান্য (নির্দিষ্ট করে লিখুন):

(চ) প্রযোজ্য নয়।

২৮। অনলাইনে পাঠদানের ক্ষেত্রে আপনি এবং আপনার বিদ্যালয়ের শিক্ষকেরা যেসব বাঁধা/সমস্যার সম্মুখীন হয়েছেন, সেগুলো সমাধানের জন্য কী কী উদ্যোগ নেওয়া প্রয়োজন বলে আপনি মনে করেন।

উত্তর:

২৯। অনলাইনে পাঠদানে প্রতিষ্ঠান থেকে কি কি সুবিধা পেয়েছেন?

উত্তর:

গবেষণার উদ্দেশ্য-৩: To identify challenges faced by the teachers to ensure integration of ICT in the teaching-learning process: শিক্ষণ-শেখানো প্রক্রিয়ায় আইসিটির একীভুতকরণ নিশ্চিত করার ক্ষেত্রে বিদ্যমান চ্যালেঞ্জগুলি চিহ্নিত করা।

৩০। **প্রচলিত (Traditional) পদ্ধতিতে শিক্ষার্থীর শিখন প্রক্রিয়ার চাইতে আইসিটি ব্যবহার করে শিক্ষার্থীর শিখন প্রক্রিয়ায় আপনি কী সুবিধা লাভ করেছেন?**

শিখন প্রক্রিয়ায় আইসিটি প্রয়োগের ক্ষেত্র	আপনার মতামত	
	প্রচলিত (Traditional) পদ্ধতিতে শিক্ষার্থীর শিখনের বৈশিষ্ট্য	**আইসিটি ব্যবহার করে শিক্ষার্থীর শিখন প্রক্রিয়ার সুবিধা**
বিষয়ভিত্তিক পাঠ পরিকল্পনা প্রস্তুতকরণ;		
সেশনের সময়সূচি শিক্ষার্থীদের জানানোর ব্যবস্থা;		
পাঠদান প্রক্রিয়াকে অংশগ্রহণমূলক (Participatory) করা;		
পাঠদান প্রক্রিয়াকে আনন্দদায়ক ও আকর্ষণীয় করা;		
শিখন বিষয়ের বোধগম্যতা (Understanding) নিশ্চিত করতে শিক্ষার্থীদের প্রশ্ন জানা ও আলোচনা করা;		
অনলাইন সেশনে নিয়মিত বাড়ির কাজ (Homework) দেওয়া ও যাচাই করা;		
নির্ধারিত পাঠ শেষে সব শিক্ষার্থীর শিখন মূল্যায়ন (Learning Assessment) করা;		
শিক্ষার্থীর শিখন মূল্যায়ন (Learning Assessment)-এর ভিত্তিতে দুর্বল শিক্ষার্থীদের জন্য বিশেষ পাঠদানের ব্যবস্থা;		
তৈরিকৃত লার্নিং কনটেন্টের মান নিশ্চিতকরণ;		
ইন্টারনেটের পর্যাপ্ত গতি;		
সব শিক্ষার্থীর পক্ষে অনলাইন সেশনে অংশগ্রহণের উপযোগী আইসিটি ডিভাইসের ব্যবস্থা;		
সেশন চলাকালে প্রযুক্তিগত (Technological) সমস্যা নিজে সমাধানের সক্ষমতা;		
অনলাইন সেশনে শিক্ষার্থীদের অংশগ্রহণের হার (%);		
অনলাইন সেশনে ছেলে শিক্ষার্থী ও মেয়ে শিক্ষার্থীর অংশগ্রহণের অনুপাত (ঃ);		
অনলাইন সেশনে অংশগ্রহণ না-করা শিক্ষার্থীদের সাথে যোগাযোগ ও অংশগ্রহণ না করার কারণ জানা এবং সেই প্রতিবন্ধকতা দূর করে পাঠ প্রক্রিয়ায় শিক্ষার্থীদের যুক্ত করা;		
জুম এ্যাপস, গুগল মিটিং, হোয়াটসঅ্যাপ ইত্যাদি ব্যবহার করে অনলাইনের মাধ্যমে শিক্ষার্থীদের পাঠ প্রক্রিয়ায় অংশগ্রহণ করানো ও তাদের সাথে যোগাযোগ অব্যহত রাখা		
পাঠদানের উদ্দেশ্য অনুযায়ী শিক্ষার্থীদের শিখন ফল অর্জন;		
কোভিড-১৯ বিদ্যমান ও পরবর্তী সময়ে অনলাইন সেশনে নির্ধারিত পাঠ্য বিষয়বস্তু ও স্বাস্থ্য সচেতনতা বিষয়ে শিক্ষাদান সক্রিয় রাখা		
কোভিড-১৯ কালীন শিক্ষার্থীদের শারীরিক, মানসিক/আবেগিক স্বাস্থ্য বিষয়ক নির্দেশনা প্রদান;		
অনলাইনে সেশন পরিচালনায় বিদ্যালয়ের প্রধান শিক্ষক ও অন্যান্য শিক্ষকদের কাছ থেকে অনুকূল সহযোগিতা প্রাপ্তি।		

গবেষণার উদ্দেশ্য-৪: To furnish recommendations to overcome these challenges: বিদ্যমান চ্যালেঞ্জগুলি সমাধান করার জন্য সুপারিশ প্রদান করা

৩১| অনলাইনে পাঠদানের ক্ষেত্রে মাধ্যমিক বিদ্যালয়ের শিক্ষকগণ এবং শিক্ষার্থীরা যেসব সমস্যার সম্মুখীন হয়ে থাকেন, সেগুলো সমাধানে আপনার পরামর্শ কী?

ক্রম	শিক্ষকগণ যেসব সমস্যার সম্মুখীন হয়ে থাকেন, সেগুলো সমাধানে পরামর্শ		শিক্ষার্থীরা যেসব সমস্যার সম্মুখীন হয়ে থাকেন, সেগুলো সমাধানে পরামর্শ	
	সমস্যা	সমাধান	সমস্যা	সমাধান
(ক)				
(খ)				
(গ)				
(ঘ)				
(ঙ)				

অধ্যায় ৩ : অন্যান্য তথ্য

৩২| মাধ্যমিক শিক্ষাস্তরে শিক্ষণ-শেখানো প্রক্রিয়ায় আইসিটির দক্ষতা ও সক্ষমতা বৃদ্ধি করার ক্ষেত্রে আর কী কী উদ্যোগ গ্রহণ করা যেতে পারে বলে আপনি মনে করেন?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(আপনার মূল্যবান সময় ব্যয় করে গবেষণা কাজে তথ্য প্রদানের জন্য আপনাকে ধন্যবাদ)

Tools-2

শিক্ষা প্রতিষ্ঠান প্রধানগণের সাক্ষাৎকারের জন্য

Disclaimer

আসসালামুআলাইকুম। আমার নাম ----------। আমি 'সমাহার' নামক গবেষণা প্রতিষ্ঠান থেকে এসেছি। 'সমাহার' বর্তমানে BANBEIS এর জন্য একটি গবেষণা পরিচালনা করছে। এ গবেষণার উদ্দেশ্য হলো: বাংলাদেশের মাধ্যমিক শিক্ষাস্তরে ICT Integration কার্যক্রমের ইতিবাচক ও বাঞ্ছিত পরিবর্তনের বিষয়ে জানা এবং প্রশিক্ষণের কার্যকারিতা বৃদ্ধির জন্য সুপারিশ করা। এসব বিষয়ে আমরা আপনার মূল্যবান মতামত জানতে কিছু প্রশ্ন করবো। উল্লেখ্য, আপনার মতামত শুধুমাত্র গবেষণার কাজে ব্যবহৃত হবে এবং আপনার দেয়া তথ্য সম্পূর্ণ গোপন রাখা হবে। আপনার অনুমতি পেলে আমি তথ্য সংগ্রহের কাজ শুরু করতে পারি।

আপনার মূল্যবান সময় ও তথ্যের জন্য অগ্রিম ধন্যবাদ।

কেইস নংঃ | | | | |

শিক্ষা প্রতিষ্ঠানের ধরনঃ ১. বালক ২. বালিকা ৩. সহশিক্ষা

শিক্ষা প্রতিষ্ঠানের অবস্থানঃ ১. গ্রামাঞ্চল ২. শহরাঞ্চল ৩. মেট্রোপলিটন ৪. হাওড় অঞ্চল ৫. চরাঞ্চল ৬. পাবর্ত্য অঞ্চল

বিভাগঃ ..... **কোড নংঃ** .....

জেলাঃ ..... **কোড নংঃ** .....

উপজেলাঃ ..... **কোড নংঃ** .....

স্কুলের নামঃ ..... **কোড নংঃ** .....

ইআইআইএন নংঃ .....

সাক্ষাৎকার গ্রহণকারীর নামঃ ..... **সাক্ষাৎকার গ্রহণের তারিখঃ** .....

অধ্যায়-১: বিদ্যালয়ে আইসিটি ফেসিলিটিজ সম্পর্কিত তথ্য

১. আপনার প্রতিষ্ঠানে আইসিটি ডিভাইস এবং তা পরিচালনার জন্য প্রয়োজনীয় সুযোগ সুবিধা বিদ্যামান আছে কি?

ক্রম	আইসিটি ডিভাইসের ধরন	মোট কতটি	সচল কতটি	অসচল কতটি
ক.	ডেস্কটপ কম্পিউটর			
খ.	ল্যাপটপ			
গ.	ট্যাবলেট			
ঘ.	স্মার্ট ফোন			
ঙ.	মাল্টিমিডিয়া			
চ.	প্রজেক্টর			
ছ.	একটিও নেই			

২. আপনার প্রতিষ্ঠানে আইসিটি নেটওয়ার্ক এবং তা পরিচালনার জন্য প্রয়োজনীয় সুযোগ সুবিধা বিদ্যামান আছে কি?

ক্রম	আইসিটি নেটওয়ার্ক ব্যবহার ধরন	মোট কতটি	সচল কতটি	অসচল কতটি
ক.	ব্রডব্যান্ড সংযোগ			
খ.	ওয়াইফাই			
গ.	মোবাইল ডেটা			
ঘ.	মোডেম			
ঙ.	একটিও নেই			

৩. আপনার প্রতিষ্ঠানে আইসিটি ব্যবহার ও পরিচালনার জন্য প্রয়োজনীয় অবকাঠামোগত সুযোগ সুবিধা বিদ্যামান আছে কি?

ক্রম	আইসিটি ডিভাইসের অবকাঠামো ব্যবহার ধরন	মোট কতটি	সচল কতটি	অসচল কতটি
ক.	কম্পিউটর ল্যাব			
খ.	ডিজিটাল ক্লাসরুম			
গ.	একটিও নেই			

৪. আপনার প্রতিষ্ঠানে মোট কতজন শিক্ষক আছেন?

শিক্ষকের ধরন	সংখ্যা (জন)
নারী শিক্ষক	
পুরুষ শিক্ষক	
মোট শিক্ষক	

৫. আপনার প্রতিষ্ঠানের মোট কতজন শিক্ষক আইসিটি বিষয়ে প্রশিক্ষণ পেয়েছেন?

শিক্ষকের ধরন	**সংখ্যা (জন)**
নারী শিক্ষক	
পুরুষ শিক্ষক	
মোট শিক্ষক	

অধ্যায়-২: প্রধান শিক্ষক/এসএমসি সদস্যের আইসিটি প্রশিক্ষণ সম্পর্কিত তথ্য

৬.আপনি কি ICT প্রশিক্ষণ পেয়েছেন?

উত্তর: _____

৭. যদি পেয়ে থাকেন, তাহলে কতদিনের প্রশিক্ষণ পেয়েছেন?

উত্তর: _____

অধ্যায়-৩: আইসিটি প্রশিক্ষণ থেকে অর্জিত দক্ষতা পাঠদানে প্রযোগের ক্ষেত্রে প্রধান শিক্ষকের/এসএমসি সদস্যের ধারণা সম্পর্কিত তথ্য

৮. আইসিটি প্রশিক্ষণ পেয়ে শিক্ষকগণ তা পাঠদানে প্রয়োগ করতে পারছেন কি?

উত্তর: _____

৯. ICT প্রশিক্ষণপ্রাপ্ত শিক্ষকগণ আইসিটি ব্যবহারের মাধ্যমে শ্রেণি কক্ষে পাঠদান সম্পর্কিত তথ্য-

সূচক	**সংখ্যা (জন)**
ICT বিষয়ে মোট প্রশিক্ষণপ্রাপ্ত শিক্ষকের সংখ্যা	
মাল্টিমিডিয়া/প্রজেক্টর ব্যবহার করে পাঠদান করেন এমন শিক্ষকের সংখ্যা	
ল্যাপটপ/ ডেস্কটপ ব্যবহার করেন এমন শিক্ষকের সংখ্যা	
আইসিটি ল্যাব ব্যবহার করেন এমন শিক্ষকের সংখ্যা	
পাওয়ারপয়েন্ট ব্যবহার করে ক্লাসে পাঠদান করেন এমন শিক্ষকের সংখ্যা	
ডিজিটাল কন্টেন্ট ব্যবহার করে ক্লাসে পাঠদান করেন এমন শিক্ষকের সংখ্যা	
কতজন শিক্ষক অনলাইনে ক্লাস নিচ্ছেন	
অনলাইনে গড়ে কতজন শিক্ষার্থী ক্লাসে উপস্থিত থাকে	
অন্যান্য	

১০. আইসিটি ব্যবহার করে ক্লাসে পাঠদানে আপনার প্রতিষ্ঠানে শিক্ষকদের জন্যে কি কি সুযোগ সুবিধা সরবরাহ করছে, তা উল্লেখ করুন:

উত্তর:

১১. অনলাইনে পাঠদানে আপনার প্রতিষ্ঠান শিক্ষকদের যে ধরনের সুযোগ সুবিধা দিচ্ছে তা পর্যাপ্ত কিনা তা উল্লেখ করুন:

উত্তর:

১২. আপনার বিদ্যালয়ে অনলাইন ক্লাস নিশ্চিত করার জন্য আপনি কী কী উদ্যোগ গ্রহণ করেছেন?

(ক)

(খ)

(গ)

(ঘ)

১৩. আপনার বিদ্যালয়ে প্রশিক্ষণ প্রাপ্ত শিক্ষকদের আইসিটি ব্যবহার করে পাঠদান করার ক্ষেত্রে সুবিধাগুলো উল্লেখ করুন ।

উত্তর:

১৪. যদি না হয়, তাহলে ব্যাখ্যা করুন। কেন শিক্ষকদের সাহায্য করা সম্ভব হয়নি?

উত্তর:

১৫. আইসিটি ইন্টিগ্রেশনে শিক্ষকদের নির্দেশনা প্রদান করেছেন অথবা করছেন কি?

(ক) শুরু করেছি;

(খ) করা হয়েছিল;

(গ) সামনে দেয়া হবে;

(ঘ) পরিকল্পনা করা হয়নি;

(ঙ) অন্যান্য.....

১৬. অনলাইন ক্লাসের কার্যকারিতা সম্পর্কে আপনার মতামত কি?

উত্তর:

১৭. অনলাইনে পাঠদানে শিক্ষক এবং শিক্ষার্থীরা কি ধরনের সমস্যার সম্মুখীন হয়েছেন নিম্নে উল্লেখ করুন:

উত্তর:

(ক) শিক্ষকগণ কী ধরনের সমস্যার সম্মুখীন হয়েছেন:

উত্তর:

(খ) শিক্ষার্থীরা কী ধরনের সমস্যার সম্মুখীন হয়েছেন:

উত্তর:

১৮. যে সকল শিক্ষকদের বাড়িতে অনলাইনে ক্লাস পরিচালনা করার জন্য প্রয়োজনীয় ডিভাইস নেই, তাদের আপনি কীভাবে সহযোগিতা করেছেন?

উত্তর:

১৯. যে সকল শিক্ষার্থীর বাড়িতে অনলাইনে ক্লাস করার জন্য প্রয়োজনীয় ডিভাইস নেই, তাদের আপনি কীভাবে সহযোগিতা করেছেন?

উত্তর:

২০. আইসিটি প্রশিক্ষণকে আরো অধিকতর ফলপ্রসূ করার জন্যে আপনার কোনো পরামর্শ থাকলে উল্লেখ করুন।

উত্তর:

২১. কোভিড কালীন এবং কোভিড পরবর্তী সময়ে আপনার বিদ্যালয়ে আইসিটির ব্যবহার সম্পর্কে নিম্নোক্ত বিষয়গুলো সম্পর্কে দয়া করে বলুন।

ক্রমিক	**ইন্টিগ্রেশনের ক্ষেত্র**	কোভিড কালীন মান			কোভিড পরবর্তী মান		
		সাধারণ	**উত্তম**	**অতি উত্তম**	**সাধারণ**	**উত্তম**	**অতি উত্তম**
১	অনলাইনে নিয়মিত ক্লাস						
২	মাল্টিমিডিয়া ব্যবহার করে ক্লাস পরিচালনা						
৩	ডিজিটাল কনটেন্ট তৈরি						
৪	শিক্ষার্থীদের ব্যবহারিক শেখানোর সুযোগ প্রদান						
৫	অন্যান্য-১:						
৬	অন্যান্য-২:						
৭	অন্যান্য-৩:						

২২. আইসিটি ডিভাইস ব্যবহার করে পাঠদানের জন্য শিক্ষকদের প্রশিক্ষণ এবং বাস্তবে ক্লাস পরিচালনা বিষয়ে আপনার কোনো সুপারিশ থাকলে বলুন।

উত্তর:

(ব্যানবেইস -এর গবেষণা কাজে সময় ও তথ্য প্রদানের জন্য আপনাকে ধন্যবাদ)

Tools-3

(উপ-পরিচালক, মাধ্যমিক ও উচ্চ শিক্ষা; জেলা শিক্ষা অফিসার; উপজেলা মাধ্যমিক শিক্ষা অফিসার এবং এসএমসি সদস্যগণের কাছ থেকে তথ্য সংগ্রহের জন্য প্রস্তুতকৃত চেকলিস্ট)

আসসালামুআলাইকুম। আমার নাম ----------। আমি 'সমাহার' নামক গবেষণা প্রতিষ্ঠান থেকে এসেছি। 'সমাহার' বর্তমানে BANBEIS এর জন্য একটি গবেষণা পরিচালনা করছে। এ গবেষণার উদ্দেশ্য হলো: বাংলাদেশের মাধ্যমিক শিক্ষাস্তরে ICT Integration কার্যক্রমের ইতিবাচক ও বাঞ্ছিত পরিবর্তনের বিষয়ে জানা এবং কার্যকারিতা বৃদ্ধির জন্য সুপারিশ করা। এসব বিষয়ে আমরা আপনার মূল্যবান মতামত জানতে কিছু প্রশ্ন করবো। উল্লেখ্য, আপনার মতামত শুধুমাত্র গবেষণার কাজে ব্যবহৃত হবে এবং আপনার দেয়া তথ্য সম্পূর্ণ গোপন রাখা হবে। আপনার অনুমতি পেলে আমি তথ্য সংগ্রহের কাজ শুরু করতে পারি।

আপনার মূল্যবান সময় ও তথ্যের জন্য অগ্রিম ধন্যবাদ।

[প্রযুক্ত উত্তর চিহ্নিত করতে "√" (টিক) চিহ্ন ব্যবহার করুন]

ক. প্রথম ভিজিট: ১. সফল হয়েছে ২. সফল হয়নি

খ. দ্বিতীয় ভিজিট: ১. সফল হয়েছে ২. সফল হয়নি

কেস নং: | | | | |

সাক্ষাৎকার গ্রহণকারীর নাম : ..... **সাক্ষাৎকার গ্রহণের তারিখ:** .....

সুপারভাইজারের নাম : ..... **তারিখ:** .....

সাক্ষাৎকার গ্রহণ: শুরুর সময়: ..... **শেষ সময়:** .....

অধ্যায়-১: সাধারণ তথ্যাবলী

উত্তরদাতার তথ্য:	
১. ১ নাম:	
১.২ পদবী:	
১.৩ কর্মস্থল:	
১.৪ মোবাইল নম্বর:	

অধ্যায়-২: গবেষণার উদ্দেশ্য ভিত্তিক তথ্য

১। বাংলাদেশের মাধ্যমিক শিক্ষাস্তরে **ICT Integration** বিষয়ে সরকারের কোন ১০টি উদ্যোগ গুরুত্বপূর্ণ বলে আপনি মনে করেন?

ক্রমিক	সরকারের উদ্যোগসমূহ
১.	
২.	
৩.	
৪.	
৫.	
৬.	
৭.	
৮.	
৯.	
১০.	

২। **আপনি যে উদ্যোগগুলোর কথা উল্লেখ করলেন, তারমধ্যে কোনটি বেশি কার্যকর এবং কোনটি কম কার্যকর বলে আপনি মনে করেন?** [উদ্যোগের নাম উল্লেখ করে" √ " (টিক) চিহ্ন ব্যবহার করুন]

ক্রমিক	সরকারের উদ্যোগসমূহ	কার্যকারিতা	
		কম	বেশি
১.			
২.			
৩.			
৪.			
৫.			
৬.			
৭.			
৮.			
৯.			
১০.			

(৪) বাংলাদেশের মাধ্যমিক শিক্ষাস্তরে **ICT Integration -**এর উদ্যোগকে আরো কার্যকর করতে কী করা দরকার বলে আপনি মনে করেন?

(৫) **ICT Integration -**এর উদ্যোগ সম্পর্কে বিশেষ কিছু বলার থাকলে উল্লেখ করুন।

(আপনার মূল্যবান সময় ব্যয় করে গবেষণা কাজে তথ্য প্রদানের জন্য আপনাকে ধন্যবাদ)

তথ্যদাতার নাম:.....

তথ্যদাতার স্বাক্ষর: .....

তথ্যদাতার সিল: .....

Tools-4

(দলীয় আলোচনার নির্দেশিকা)

(Focus Group Discussion (FGD) Guidelines)

অংশগ্রহণকারী: গবেষণাভুক্ত শিক্ষা প্রতিষ্ঠানে অষ্টম থেকে দশম শ্রেণিতে অধ্যয়নরত শিক্ষার্থী ।

[প্রতি FGD-তে অংশগ্রহণকারী ৮-১২ জন]

বিদ্যালয়ের নাম:

উপজেলা : ..... কোড নং : .....

জেলা : ..... কোড নং : .....

বিভাগ : ..... কোড নং : .....

এফজিডি সমন্বয়কারীর নাম: ..... সহায়তাকারীর নাম: .....

দলীয় আলোচনার স্থান: ..... তারিখ: .....

দলীয় আলোচনায় অংশগ্রহণকারীদের পরিচিতি

ক্র.	নাম	অধ্যয়নরত শ্রেণি	মোবাইল নম্বর	স্বাক্ষর
১				
২				
৩				
৪				
৫				
৬				
৭				
৮				
৯				
১০				
১১				
১২				

Roles of Facilitating Team:

১. এফজিডি সেশনটির নির্ধারিত সময় ৬০-৮০ মিনিট;
২. দলীয় আলোচনার জন্য দুইজন কাজ করবে। এফজিডি পরিচালনাকারীকে সহযোগিতা করার জন্য একজন সহায়তাকারী থাকবে;
৩. এফজিডি পরিচালনাকারী সমগ্র সেশনটি সম্পন্ন করবে, সহায়তাকারী আলোচনায় উঠে আসা মতামত ও তথ্যসমূহ সুস্পষ্টভাবে লিপিবদ্ধ করবে;
৪. দলীয় আলোচনার মাধ্যমে সকলে যাতে সক্রিয়ভাবে সুস্পষ্ট মতামত প্রদান করতে পারে সেজন্য এফজিডি ফ্যাসিলিটেটর সহায়তা করবে;
৫. দলীয় আলোচনার সময় এফজিডি ফ্যাসিলিটেটর অংশগ্রহণকারীদের অনুমতিক্রমে সহায়তাকারীর দ্বারা আলোচনা রেকর্ড করবে।

The Process:

১. ফ্যাসিলিটেটর অংশগ্রহণকারীদের স্বাগত জানিয়ে সেশন শুরু করবেন;
২. ফ্যাসিলিটেটর অংশগ্রহণকারীদের সকলকে নিয়ে **U** আকৃতিতে বসার ব্যবস্থা করবেন;
৩. ফ্যাসিলিটেটর প্রথমে দলগত আলোচনায় বর্তমান নিবিড় পরিবীক্ষণের উদ্দেশ্য নিয়ে আলোচনা করবেন এবং অংশগ্রহণকারীদের মতামত নেবেন;
৪. ফ্যাসিলিটেটর এফজিডি গাইড লাইন অনুযায়ী সুস্পষ্টভাবে অংশগ্রহণকারীদের মতামতের ভিত্তিতে আলোচনার সকল তথ্য বের করে আনবে;
৫. ফ্যাসিলিটেটর কোনোভাবেই নিজের মতামত চাপিয়ে দিবে না অথবা অংশগ্রহণকারীদের মতামতকে প্রভাবিত করে, এমন ভূমিকা পালন করবে না;
৬. ফ্যাসিলিটেটর উদ্দেশ্য থাকবে গঠনমূলক আলোচনার মাধ্যমে সফল ও দুর্বল দিকসহ নিবিড় পরিবীক্ষণের উদ্দেশ্যকে আরো কার্যকরী করার জন্য সুপারিশমালা/মতামতের ভিত্তিতে বের করে আনা;
৭. ফ্যাসিলিটেটর আলোচনার শেষে ক্রমান্বয়ে সমগ্র সেশনটি অংশগ্রহণকারীদের উদ্দেশ্যে পড়ে শোনাবেন যাতে করে আলোচনার কোন অংশ বাদ না যায় বা ভুল না হয়; এবং
৮. পরিশেষে সকলকে ধন্যবাদ জানিয়ে ফ্যাসিলিটেটর এফজিডি সেশনটি শেষ করবেন।

দলীয় আলোচনার মূল বিষয়বস্তুঃ

বাংলাদেশের মাধ্যমিক শিক্ষাস্তরের আইসিটির ব্যবহার নিশ্চিত করতে বাংলাদেশ সরকার নানা উদ্যোগ বাস্তবায়ন করে যাচ্ছে। সেই উদ্যোগগুলো সম্পর্কে আমরা তোমাদের কথা শুনবো, যাতে আরো কার্যকর ও সফল আইসিটির ব্যবহার তোমাদের জন্য নিশ্চিত করা তোলা সম্ভব হয়। তোমরা প্রস্তুত থাকলে আমি তোমাদেরকে কিছু প্রশ্ন করবো। যে কেউ উত্তর দিতে পারবে, অন্যরা ঐবিষয়ে আরো তথ্য সংযোজন করতে পারবে।

বিষয়ভিত্তিক আলোচনার অনুষঙ্গ:

ক্রম	বিষয় :আইসিট ডিভাইসের ধরন	
ক.	ডেস্কটপ কম্পিউটর	

ক্রম	বিষয় :আইসিট ডিভাইসের ধরন	
খ.	ল্যাপটপ	
গ.	ট্যাবলেট	
ঘ.	স্মার্ট ফোন	
ঙ.	মাল্টিমিডিয়া প্রজেক্টর	

ক্রম	বিষয় :আইসিটি নেটওয়ার্ক সুবিধার ধরন	
ক.	ব্রডব্যান্ড সংযোগ	
খ.	ওয়াইফাই	
গ.	মোবাইল ডেটা	
ঘ	মোডেম	

ক্রম	বিষয় :আইসিটি ব্যবহারে অবকাঠামোগত সুবিধার ধরন	
ক.	কম্পিউটর ল্যাব	
খ	ডিজিটাল ক্লাসরুম	

অন্যান্য আলোচ্য বিষয়:

- মাল্টিমিডিয়া/ প্রজেক্টরের মাধ্যমে পাঠদান সেশনে কথা বলার সুযোগ:
- মাল্টিমিডিয়া/ প্রজেক্টরের মাধ্যমে পাঠদান সেশনে নিয়মিত কাজ দেয়া ও যাচাই করন:
- নির্ধারিত পাঠ শেষে শিখন নিশ্চিত করণে শিক্ষক কর্তৃক শিখন যাচাই:
- তুলনামূলক দুর্বল শিক্ষার্থীদের জন্য পাঠ পুনরালোচনার ব্যবস্থা:
- সেশন চলাকালে প্রযুক্তিগত সমস্যা হলে দ্রুত সমাধানের উদ্যোগ:
- পাঠ্য বিষয়ের বাইরে অন্যান্য গুরুত্বপূর্ণ শিখন বিষয়ে আইসিটিবেইজড- সেশন পরিচালনা:
- পরিচিত এবং পাঠ্য বিষয়ের সাথে সম্পর্কযুক্ত আকর্ষনীয় ডিজিটাল লার্নিং কনটেন্ট তৈরি:
- আইসিটিবেইজড ক্লাস পরিচালনার ক্ষেত্রে যদি আরো- বিশেষ কোনো নিয়ম অনুসরণ:
- ICT **ব্যবহারের মাধ্যমে** ক্লাসকে আরো কার্যকর করে তোলার জন্য কোনো সুপারিশ:

(মূল্যবান সময় ব্যয় করে গবেষণা কাজে তথ্য প্রদানের জন্য ধন্যবাদ)

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