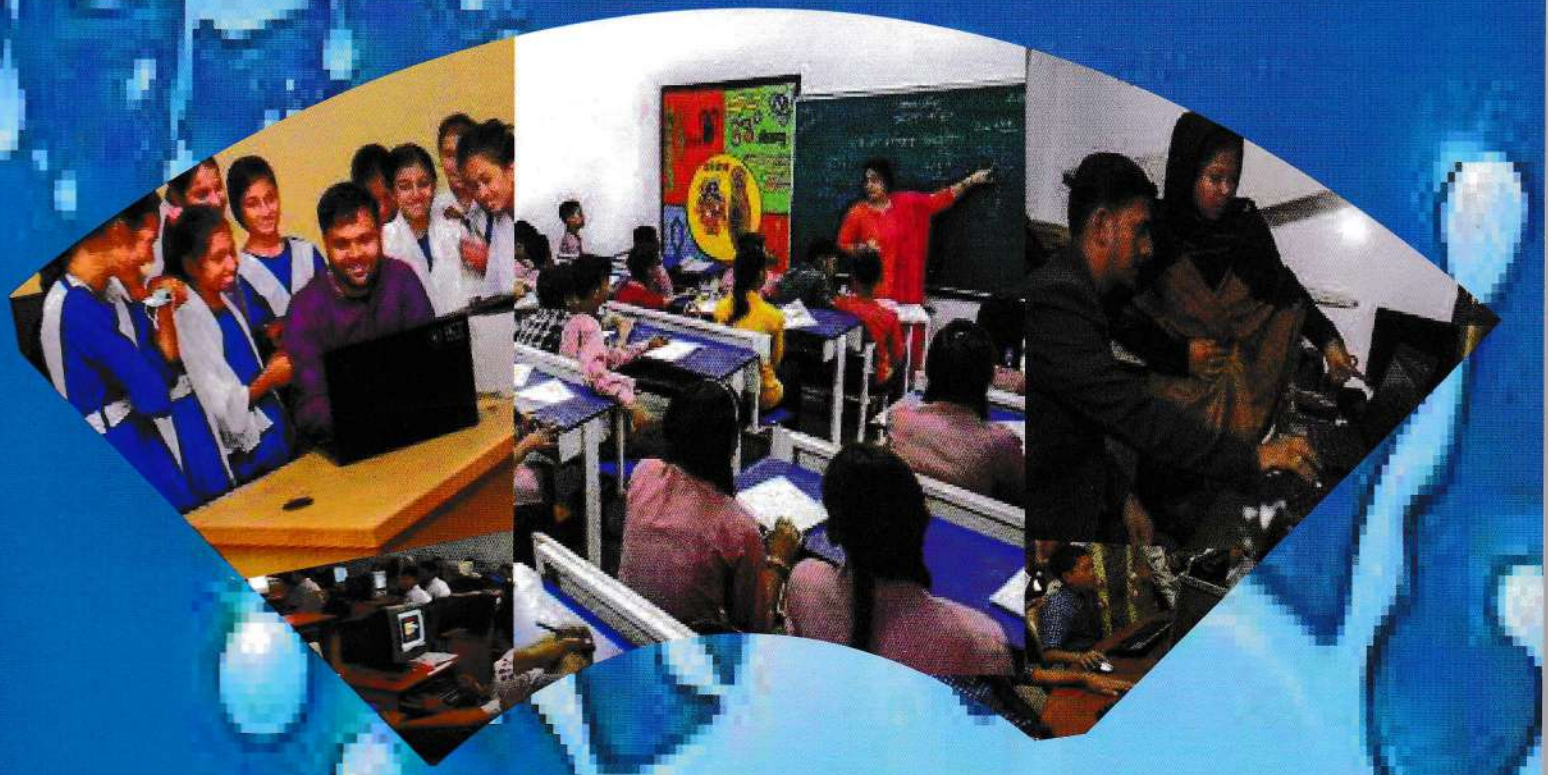
Government of the People's Republic of Bangladesh

Ministry of Education

Secondary and Higher Education Division

Study on
Status of Higher Secondary Teachers Capacity in Using ICT for Learning



Bangladesh Bureau of Educational Information and Statistics (BANBEIS)

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

CONTENT

PREFACE

To sustain in the age of globalization, the ICT wave and fourth industrial revolution, we are very much relying on information technology. It is almost impossible to keep pace with the post-modern world without the support of information technology. Therefore, the government of Bangladesh and its education systems has integrated Information and Communication Technology (ICT) at the higher secondary level very seriously. Digital Bangladesh is one of the nation's dreams, and so special emphasis is given on the application of digital technologies to realize Vision 2021, which we commonly call Digital Bangladesh. Moreover, Bangladesh has an Information and Communication Technology (ICT) policy formulated for human resource development that states that the country must prepare itself to compete effectively in the global ICT wave. With the development of ICT and its use in education, the developed countries of the world have changed their teaching-learning methods and modalities to make them more effective. To compete with this new situation, we must introduce and properly use ICT in the existing teaching-learning process especially in the field of secondary education in Bangladesh. No doubt, in recent years, the application of ICT appears in pedagogy as an influential means that can improve the quality of secondary education in Bangladesh. In recent years, the government has taken several initiatives to apply the ICT in education.

Since the Covid-19 pandemic, the country has become much more dependent on ICT supported online education system. The government has also taken initiative to continue educational activities through national television channels. With the decrease in the infection rate of coronavirus, offline educational activities have started again, but the dependence that has been created on the use of ICT devices is still significantly there. Many professionals believe a trend of mixing online and offline education, i.e. blended teaching and learning methods would help reduce dependency on private coaching and guidebooks, which obviously helps the students of lower socio-economic groups as well as those vulnerable and disadvantaged minority groups living in the remote rural areas. Most importantly, this blended teaching-learning method will contribute to the education system during any pandemic situations in near future or at the time of any socio-economic and political crisis.

In this backdrop, Bangladesh Bureau of Educational Information and Statistics (BANBEIS), an attached department of the Ministry of Education has taken imitative to conduct a study in addition to regular educational information and statistics and engaged some designated organizations to provide consulting services. BANBEIS is mainly responsible for providing educational information and statistics as part of planning, management, and decision-making process in the education sector. Under this assignment, Steps Towards Development (Steps) was given the responsibility to conduct the study titled “Status of Higher Secondary Teachers’ Capacity on Using ICT for Learning”. This study reflects on some crucial key findings.

Mr. Habibur Rahman
Director General
Bangladesh Bureau of Educational Information and Statistics (BANBEIS)
Ministry of Education

ACKNOWLEDGEMENT

We are expressing our heartfelt gratitude to the concerned professionals and organizations who have directly and significantly contributed to successfully complete this study. First, we would like to extend our gratitude to **Mr. Habibur Rahman, honorable Director General** and **Kaji Eleas Uddin Ahmed, Chief, DLP Division and Research** of Bangladesh Bureau of Educational Information and Statistics (BANBEIS) for their effective support and cooperation all the way to this study. Side by side, we extend our sincere gratitude to the research team of BANBEIS for their all-out support and contribution. We also acknowledge the contribution of different stakeholders of BANBEIS for sharing their valuable insights and critical feedback during the Inception Report sharing session and beyond.

Special thanks go to all the Principals or Head of the Institutions, ICT and Course Teachers, different local experts as well as other respondents who have provided tremendous support throughout different stages of this study. Without their assistance, it would have been very difficult to complete this task within the time-bound period.

And last but not the least, our deepest acknowledgement to the whole research team of this study including the Team Leader and Researchers, network partners, training facilitators, field data collectors and data investigators, and respondents for their tremendous efforts, support and cooperation. The research team was involved and contributed to all stages of this study e.g., reviewing ToR, developing methodology, reviewing related literature, formulating research questionnaires and checklists, data collection, monitoring, data processing including data entry, data mining, data analysis, data interpretation and in developing the Final Report.

Ranjan Karmaker
Executive Director
Steps Towards Development (Steps)

EXECUTIVE SUMMARY

Bangladesh Bureau of Educational Information and Statistics, an attached Department of the Ministry of Education took initiative to conduct a study on Higher Secondary Teachers' Capacity on using ICT for Learning. BANBEIS has engaged designated organizations to provide consulting services in this regard. As a part of this, the study titled "Status of Higher Secondary Teachers' Capacity in Using ICT for Learning" was conducted in association with Steps Towards Development. The overall aim of this study was to facilitate ICT support for enhancing the capacity of higher secondary teachers in teaching-learning method and to overcome the challenges faced by the teachers and the learners.

The study was conducted in 16 districts and 64 sub-districts under 8 Divisions of Bangladesh. Under this study, a total of 432 Higher Secondary Institutions including 80 Madrasahs were selected following the probability sampling technique from the selected districts and sub-districts. There were 5,696 respondents drawn as a sample in this study. The breakdown of respondents was as follows:

- Face-to-face interview was conducted with 432 institutional heads, 1,296 subject teachers and 432 ICT course teachers.
- A total of 432 Focus Group Discussions were conducted with a total of 3,456 students from 432 higher secondary institutions.
- 80 KIIs were conducted in 16 districts including the representatives of ICT training providers/representatives of Education Board/a2i representatives/local experts etc.

The assignment followed a system-wide methodological approach, which is both in-depth and participatory. The assignment involved the use of: (i) Literature Review of existing reports, research etc. (ii) formal and informal interviews; (iii) semi-structured interviews, focus group discussions and (iv) field survey through structured questionnaire, collection of primary and secondary data and information, and a series of reconnaissance field visits by the research team in the project area.

The study did data management, processing and analysis including finalization of the questionnaires, code construction, coding, data verification and quality control, data entry, data processing and finally the analysis and interpretation to facilitate the required output generation. All the necessary analysis of collected data was done using SPSS and spreadsheet. In line with the requirements of the RFP, the Team Leader and other researchers of the survey team designed the dummy bi-variate/multi-variete tables/graphs, which were finalized by the Data Analyst for scientific analysis of data. Based on the analysis and interpretation of collected data and information, a draft report was prepared. The draft report was shared in a meeting with Experts, Researchers and Senior Personnel of BANBEIS Chaired by the Director General, Bangladesh Bureau of Educational Information and Statistics (BANBEIS), Ministry of Education. Considering all inputs and suggestions the report is finalized.

The study revealed that most of the teachers and students are using different kinds of ICT devices in their classroom in higher secondary education, though not very regularly and only when they need it. The subject teachers and ICT course teachers also conduct online classes,

when needed. Especially they took online classes during the Covid-19 pandemic, when all the academic instuitions were shut down by the government. It was found that a significant number of academic institutions have ICT facilities and devices e.g., multimedia, laptop, desktop/PC, internet connections etc. However, many respondents highlighted several challenges and problems that are hindering smooth administering of the ICT supported facilities. These include periodical and sudden load shedding, slow internet and mobile network, insufficient number of devices in comparison to the number of teachers and students etc. In addition, maintenance of the devices is a major problem for them. The findings indicate that about 70 percent institutions do not have their digital lab and about 55 percent do not have any computer laboratory.

A significant number of teachers (24%) have received basic training on ICT. Most of the teachers (70%) have received different types of training on ICT. However, almost all the respondents opined that regular short-term, long-term, follow-up and need-based theoretical and practical advanced training is necessary for capacity development of the teachers. Higher authorities should monitor and review this process time-to-time.

About 88% of the teacher respondents informed that use of ICT devices at the classrooms has increased and it's helping to enhance students' concentration and thereby improved the teaching and learning quality.

Most of the student respondents also agreed that despite some technical problems in internet connectivity, they enjoy their classes more when the teachers use ICT devices. Many teachers and heads of institutions (about 47%) said that they use ICT devices for evaluating the teaching and learning modalities. However, they said that these are mainly helping in compiling relevant data and statistical information including student's performance appraisal, compilation of marks and grades and finally issuing certificates from the concerned authorities. They further said if they have enough desktops or laptops, they could use them for taking surprise quiz/test, which could be more effective than the traditional question-answer type examinations.

Students from science group said that they do not have their own devices to have better learning scope and opportunities, especially in getting and downloading the educational contents. If they had own devices, it would help them stay connected to their teachers either through Zoom Platform, social media, as it could also help forming students' groups for group consultations, preparing assignments, getting acquainted with presentation skills etc. At the same time, they informed that their educational institutions do not have enough devices for education-related support after the classes.

It was also identified from the study that the use of ICT for online and offline learning has brought some flexibility in developing teaching contents, texts, audio-video, and documents as part of easy understanding by teachers and students. It is further revealed that the support of ICT is quite helpful for developing repositories related to information preservation, information sharing and promotion, and getting accustomed to global education system.

However, almost all the teachers who conduct their classes by using ICT claimed that they do

not have enough technical expertise to handle the ICT-supported teaching and learning system. Even many respondents said that there are no permanent ICT-related administrators and support staff for handling and facilitating different devices to smoothly and efficiently run the teaching-learning system in their institutions.

The management also informed that they do not have an adequate budget for buying new devices and maintenance of the old devices. The respondents emphasized making inventory assessment and the need for related infrastructure, software and hardware support for the concerned institutions. And based on need assessment, the authority must provide adequate number of ICT devices and extend related facilities, arrange regular and follow-up training for all the teachers, ensure provision for appointing adequate and experienced lab instructors, operators, attendants and supervisors and ensure recruitment of skilled technical human resource for better support services through ICT connectivity.

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ACRONYMS AND ABBREVIATIONS

A2i	Project Aspire to Innovate Project
BANBEIS	Bangladesh Bureau of Educational Information and Statistics
BDT	Bangladesh taka
BEDU	Bangladesh Examination Development Unit
Covid 19	Corona virus disease 2019
CD and DVD	Compact Disc and Digital Versatile Disk
Digital Lab	Digital Laboratory
FGD	Focus Group Discussion
GOB	Government of Bangladesh
ICT	Information and Communication Technology
INGOs	International Non-Government Organization
KII	Key Informant Interview
NAEM	National Academy for Educational Management,
NACTAR	National Academy for Computer Training and Research
NGO	Non-Government Organization
PC	Personal Computer
RFP	Request for Proposal
SMS	Short Message Service
Steps	Steps Towards Development
SPSS	Statistical Package for Social Sciences
TTC	Teachers' Training College
TQI Project	Teaching Quality Improvement Project
Wi-Fi	Wireless Fidelity

CHAPTER ONE

Background of the Study

Rationale of the Study

Objectives of the Study

Working Objectives

Operational Definition

1.1 BACKGROUND OF THE STUDY

The use of Information and Communication Technologies (ICT) at the higher secondary level is taken very seriously by the government of Bangladesh and education systems around the world. Bangladesh, like many other countries, is investing heavily (estimated BDT 17,959 crore annually)[1] in the education system considering this as one of the core strategies to alleviate poverty and raise the ICT skills of Bangladesh society and culture and move towards an ICT supported information society. This is a testament to the importance being placed on education and training in the use of ICT and the setting of high priorities to improve teaching and learning outcomes to prepare young people for the contemporary information economy. Moreover, Bangladesh has an Information and Communication Technology Policy formulated for human resource development that states that the country must prepare itself to compete effectively in the global ICT wave.

With the development of ICT and its use in education, the developed countries of the world have changed their teaching-learning methods by introducing ICT to make it more effective. To accommodate and compete with this new situation, we must introduce and properly use ICT in the existing teaching-learning methods especially in the field of secondary education in Bangladesh. No doubt, in recent years, ICT application appears in pedagogy with such an influential means that can progress the quality of secondary education in Bangladesh. The government has taken some initiatives to use ICT in education. For example, the concerned Boards have published 61 million results of public examinations following technology-supported examination assessment, evaluation, and compiling system, 37.4 million results have been provided over SMS in 2012 and 63 million results of public examinations through ICT supported soft and hard wares, 38 million through SMS in 2013. Moreover, in the last year, about 2.7 million admission applications have been received through online application system. On the other hand, the government has supported and facilitated Multimedia-supported Classrooms in 503 secondary schools in 2012 followed by 20,500 secondary schools and higher secondary institutions in 2013 and it has happened due to ICT-supported teaching and learning methods. Furthermore, the government has arranged ICT training for the teachers of secondary schools through a2i project, TQI project and other education and development projects[2].

Several projects have been initiated and conducted to encourage ICT support. The concerned district education officers have taken concerted efforts to support the ICT supported teaching and learning in primary and secondary schools in Bangladesh. Higher secondary and university education, on the other hand, have introduced more standardized and advanced ICT supported teaching and learning methods in comparison to primary and secondary education.

But, in the last two years normal and physical academic activities including the teaching and learning system have been interrupted by the Covid-19 pandemic and significantly

[1]http://banbeis.portal.gov.bd/sites/default/files/files/

[2]Impact and Status of ICT Training for School Teacher 2015: BANBEIS

affected the whole educational system, including physical knowledge sharing sessions, physical conduction of examinations, student assessment and teacher's performance evaluation in Bangladesh and other developing countries.

To overcome the catastrophes in the education sector, ICT supported online, and distance education system has been initiated with the support of a digital platform based educational system. Teachers and students worked hard to develop creative methods or maintaining and learning continuity through remote learning. Information and communication technologies have played a crucial role in such situations. Besides, there is diversity among the streams; for example, teaching math, science and social science need different skills and software.

The COVID-19 outbreak has forced us to introduce ICT supported teaching and learning methods. As this global pandemic has significantly impacted college and school education in Bangladesh, there was a need-based obligation to integrate ICT into the teaching-learning and assessment framework. The transformation of face-to-face teaching-learning and assessment practices into a blended form is still poorly defined but widely discussed, warranting the need for a well-framed implementation Policy. This study will help to identify the status of higher secondary teachers' capacity in using ICT for learning.

1.2 RATIONALE OF THE STUDY

Demand for using ICT devices in classrooms is becoming increasingly necessary day by day. Not only for quality education, but the use of ICT devices has become necessary for overcoming many adverse situations, like the Covid-19 pandemic, which the world is still confronting. Assessing the teaching-learning process for teachers and students in blended learning must also be objective and credible. Blended learning is becoming a preferred method of instruction because it personalizes learning, allows thoughtful reflection, and differentiates instructions from student to student. Currently, the blended learning practice refers to online educational materials and opportunities for online interaction blended with traditional, classroom-based methods. It requires the physical presence of both teachers and students, with some elements of student control over time, place, path, and pace. Successfully applying information and communication technology is of prime importance in teaching-learning and assessment systems at higher secondary level.

Based on the diversity of knowledge taught to students by teachers, one should be deliberate on whether blended learning is the optimum method in terms of knowledge acquisition. A competent decision can only be taken by a subject teacher who is familiar with ICT supported e-learning methodology and capable of selecting from diverse teaching methods, choosing those which are the best match for mastering the theoretical and practical knowledge of the subject matter. Obviously, a teacher who is not aware of technology-supported options offered by an ICT supported learning and management system, operated by an e-Learning Platform or any other suitable platform or of need-based teacher and student engagement methods is not willing to use these in practice. Therefore, the study places a great emphasis on the continuous improvement of higher secondary teachers' ICT competencies in the field of learning management methodologies.

Different research on the education system indicates that although teachers in educational institutions show great interest and motivation to learn about the potential of ICT, in practice, the use of ICT is relatively low and it is focused on a narrow range of applications, with word processing being the predominant use, and video/network conferencing, emailing and the Internet being rarely used. Several studies suggest that ICT as a tool to promote learning is not generally well embedded in teachers' practice and that 'information technology in the classroom is used in an ineffective way and it has proven difficult to integrate within traditional curriculum settings. Many higher secondary teachers recognize a range of benefits for learners and themselves in using ICT, but often fail to integrate it into their teaching, continuing to 'teach ICT supported teaching and learning method rather than learning ICT technology'. In primary and secondary level educational institutions in Bangladesh, teachers tend to use ICT to support classroom practice, while higher secondary level teachers are supposed to use it more for professional development and personal use rather than for teaching. It is evident that teachers who use a computer at home tend to use it more in classrooms and that differences exist between subject areas in the practice and attitudes towards ICT, with teachers of business management using it more and mathematics and science teachers using it the least.

As a result, Information and Communication Technology in teaching and learning is high on the educational reform agenda. Often ICT is seen as an indispensable tool to fully participate in the knowledge society. ICT supported devices need to be seen as an essential aspect of teaching's cultural toolkit, especially in the context of blended teaching and learning in Bangladesh, at the juncture of the twenty-first century, affording new and informativeness models of development.

In addition, the results of some studies reveal that unavailability of modern ICT supported tools, lack of motivation and training, job satisfaction and attitude towards the use of ICT tools in teaching learning activities (pedagogy) are the main constraints in higher secondary education level. Also, the teacher's capacity for administering blended learning needs to be assessed from the teacher, student, and parent's perspectives. So, this study attempted to assess the teachers' capacity as well as to explore challenges and opportunities in using ICT as part of blended teaching and learning methods and devices in higher secondary education. This will also help to give a way forward in this system. This research project also endeavored on the present status of ICT training and its' impact on the higher secondary level teachers' competency for improving the ICT as part of the teaching-learning method.

1.3 OBJECTIVES OF THE STUDY

- To explore what kind of ICT devices have been used for higher secondary education
- To explore the effectiveness of using ICT devices for conducting online and offline classes
- To identify the actual needs and requirements of teachers, students, management, and related stakeholders in smooth implementation of blended teaching-learning system at higher secondary level of education
- To examine the effectiveness of teachers-students' supportive teaching-learning methods and ICT supported devices, system, and platforms
- To explore how formative and summative assessments have been carried out and the nature of their utilization and effectiveness
- To unfold challenges and identify a way forward of using ICT devices in blended teaching and learning methods at higher secondary level of education.
- To furnish recommendations to overcome the identified challenges and requirements

1.4 WORKING OBJECTIVES

In undertaking this Project, the research team will apply a set of working objectives that have been developed over decades of undertaking based on similar projects completed both at home and abroad:

- to assess the nature of technical, organizational, and administrative issues that affect the Project.
- to examine the effectiveness of ongoing planning, programming, implementation, and monitoring of project activities by analyzing whether the application of systems/techniques that effectively ensure efficient execution of blended learning by using ICT for supporting teachers at higher secondary level of teaching.
- to identify whether utilization and execution of local resources have been done efficiently and effectively for timely completion of ICT supported blended learning to enhance teacher's capacity.
- to evaluate the appropriateness of operations, management and development of ICT supported blended teaching-learning systems.

1.5 OPERATIONAL DEFINITION

ICT -According to Wikipedia[3] Information and communications technology (ICT) is an extensional term for information technology (IT) that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals) and computers, as well as necessary enterprise software, middleware, storage and audiovisual, that enable users to access, store, transmit, understand and manipulate information.

ICT is also used to refer to the convergence of audiovisual and telephone networks with computer networks through a single cabling or link system. There are large economic incentives to merge the telephone network with the computer network system using a single unified system of cabling, signal distribution, and management. ICT is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite systems and so on, as well as the various services and appliances with them such as video conferencing and distance learning. ICT also includes analog technology, such as paper communication, and any mode that transmits communication.

Online Education- Online education is a flexible instructional delivery system that encompasses any kind of learning that takes place via the Internet. Online learning gives educators an opportunity to reach students who may not be able to enroll in a traditional classroom course and supports students who need to work on their own schedule and at their own pace. (Source -Encyclopedia.com)

[3] https://en.wikipedia.org/wiki/Information_and_communications_technology

CHAPTER TWO

Literature Review

2.1 LITERATURE REVIEW

Digital Bangladesh is one of the nation's dreams, and so special emphasis is given on the application of digital technologies to realize Vision 2021, which we commonly call Digital Bangladesh. The government of Bangladesh implemented many projects relating to digital technologies and a number of these are already underway. National ICT Policy-2009 was developed with a view to achieve middle-income status of the nation by 2021 and developed status by 2041.[4]

Under Strategic Theme 3.4 of National ICT Policy 2009 (Build capacity of government officials and foster leadership for electronic service delivery), provision of adding a 50-mark examination (to the current 300-mark examination) for applied computer and internet literacy for senior scale promotion examinations for cadre services has introduced starting in January 2010. Moreover, new criteria for assessment o basic computer and internet literacy in the ACR has been inserted since January 2010. [5]

The Bangladesh Awami League announced in their election manifesto that by 2021, 50 years of independence, Bangladesh would be digital and in continuation of this Digital Bangladesh was declared on December 12, 2008. A developed country, a prosperous digital society, a transformed production system, a new knowledge-based economy are the key points of Digital Bangladesh. Digital Bangladesh is the first step towards building a science-based society. The core commitment of Digital Bangladesh is to use digital tools to alleviate poverty and reduce corruption. Its main goal is to bring every home under the digital network. Many of the steps taken to build a digital Bangladesh by 2021 have already been implemented. [6]

ICT has invaded and transformed many aspects of our lives to the extent that we live in an environment that is dominated by technology which itself is consumer-driven (Semenov, 2005). No matter how we perceive its presence, there is no denying that it is an important part of our lives and that it is here to stay. The world we live in is a result of constant change. What might be there one day is never there the next. Look at what has happened with Covid-19! The changes that we have all born witnessed represent a significant period in our lives. With most of the world in lockdown, due to the pandemic, people are working from home if they can, students are learning from home in an online format, and parents are picking up the slack from teachers and supporting their children. This unprecedented event has changed the world and has brought it into a new era - the time of online learning for all people.

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[4] Digital Bangladesh: Dreams and reality; Saturday, June 18, 2022: https://www.thedailystar.net/supplements/24th-anniversary-the-daily-star-part-1/digital-bangladesh-dreams-and-reality-73118

[5] National ICT Policy 2009: http://birolup.dinajpur.gov.bd/sites/default/files/files/birolup.dinajpur.gov.bd/law_policy/a9219bbc_1901_11e7_9461_286ed488c766/en_382.pdf

6 Digital Bangladesh - Vision 2021: The Secret of Bangladesh's Transformation, Published on February 2, 2021 By Banladesh Awami league: https://albd.org/articles/news/35867/Digital-Bangladesh---Vision-2021:%0D%0AThe-Secret-of-Bangladesh%E2%80%99s-Transformation

It is important for students to engage with ICT to:

1. Learn 21st-century skills and develop their ICT capability and ICT literacy.
2. Improves their attainment levels.
3. Prepares them for an integrated society dominated by ICT developments
4. Learn the notion of using ICT as a tool for lifelong learning[7]

Without adequate capacity building, even well-designed policies and the most sophisticated technologies would not be able to achieve the desired results. Allocation of resources for use of ICT in human development areas in South Asia (also developing and least developed countries) must balance the needs between providing basic infrastructure such as computers, connectivity, and physical infrastructure on one hand with the mass-based learning networks, content support, and development initiatives on the other. All the programs and policies related to ICT in education must address both these dimensions since inadequate infrastructure would undermine the feasibility of mass-based soft infrastructure such as creation of knowledge networks and content creation. On the other hand, creation of more infrastructure without availability of such soft resources for ICT-enabled learning would turn out to be white elephants and would realize no benefits for the lack of maintenance in the longer run.

Capacity Building for ICT in Education While there are many stakeholders involved in ensuring effective integration of ICT in the education system, teachers have a particularly important role to play. According to Carlson and Gadio (2002), teachers are the key to whether technology is used appropriately and effectively. Appropriate use of ICT can catalyze the paradigmatic shift from teacher-centered pedagogy to a more effective learner-centered pedagogy. Capacity building of teachers as well as administrators and managers can play a major role in enabling this shift. The focus of teacher training institute however should not be limited to training teachers on how to use ICT rather it should provide the teachers with the skills and expertise required to use ICT to teach a curriculum, which is better suited to prepare students for the 21st century.[8]

Bangladesh, as a developing country has brought a substantial change in socio-economic sectors during last decade. The desire of being a middle-income country has driven Bangladesh to come up with a modern education policy, which will help them to produce the skilled workforce. ICT integration in education was the most significant step of this latest education policy, and Government of Bangladesh has stepped up to make a

[7] Why schools should invest in ICT; A blog of ICTE Solution Australia - Online Professional Development for Teachers using Technology in the Classroom; 1 Nov 2021: https://www.ictesolutions.com.au/blog/why-schools-should-invest-in-ict/

[8] Capacity Building for ICT in Education; Information and Communication Technology for Education in India and South Asia; Essay III; 2010: https://www.infodev.org/infodev-files/resource/InfodevDocuments_888.pdf

successful implementation of ICT in education. This study investigated the strategy of technology- inclusion in secondary education according to new education policy of Bangladesh. It examines the extent of ICT usage in the classroom, the perceived impact of technologies in teaching and learning and the possible factors that seem to hamper enhanced ICT use in secondary education.

Secondary schools started using technologies in their teaching and learning, but still, the use is not optimal mainly because of minimum infrastructure and perception of stakeholders. ICT helped to make the classes student-centered and interactive which was one of the aims of new education policy, but the practice of using technology in teaching and learning is still limited in most of the schools. Although all the stakeholders of education sector understand the benefits of ICT inclusion, they are facing various problems in the implementation process. More time is needed to overcome these obstacles and to bring about behavioral changes among the teachers and students to a successful integration of ICT in secondary education of Bangladesh.[9]

Information and Communication Technology has paved the way for accelerating a paradigm shift in the teaching-learning processes. Several research findings support that online learning enhances learning as well as higher order thinking skills. However, all topics in science cannot be transacted completely online. Moreover, science as a discipline demands certain modes of transaction such as experimentation, demonstration, and discussion. Therefore, blended learning as a pedagogical strategy for facilitating learning by skillfully blending online learning techniques such as delivery of materials through web pages, discussion boards and/or emails with the effectiveness and socialization opportunities of face-to-face instruction become significant.

Blended learning is an educational formation that integrates online learning techniques including online delivery of materials through web pages, discussion boards and/or email with traditional teaching method. The pedagogy of blended learning assumes that there are inherent benefits in face-to-face interaction as well as the understanding that there are advantages in using online methods (Clark & Patrick, 2007). Blended learning is used to describe learning that mixes various event-based activities, including face-to-face classrooms, live e-learning, and self-paced learning (Valiathan, 2002). Providing several online options in addition to traditional classroom training increased what students learned. (Dean, Stahl, Sylvester & Pearson, 2001; Graham & Allen, 2005). Blended Learning, the teaching practice that combines teaching methods from both face-to-face and online learning, is an established, rapidly growing instructional model that is proving highly effective in helping schools and districts address the challenges of student achievement, limited resources, and the expectations of 21st century learners (Eduviews, 2009).[10]

[9] ICT integration in Secondary Education in Bangladesh: A study of Policy and Practice; M. M. Imran Iqbal Imon; Department of Education Faculty of Educational Sciences University of Oslo December, 2017: https://www.duo.uio.no/bitstream/handle/10852/61350/1/Imran-Thesis-CIE--17-.pdf

[10] Effect Of Blended Learning Strategy For Secondary School Science Students; An article at ResearchGate; Authors: Palash Majumder, Madhulika Mandal and Gourish Chandra Mondal; January 2019: https://www.researchgate.net/publication/330619467

CHAPTER THREE

Approaches to the Study

Sources of Data

The Conceptual Framework

Study Design

Selection of Study Location

Selected Locations of the Study

Sampling Method And Sample Size

Selection of Respondents

Data Collection Process

Quality Control

Data Analysis

Limitations of The Study

3.1 APPROACHES TO THE STUDY

The assignment followed a system-wide methodological approach, which is both in-depth and participatory. This approach involved wide-ranging and sequenced discussions with project management persons and targeted stakeholders to know their views. The assignment involved the use of: (i) Literature Review of existing reports, research etc. (ii) formal and informal interviews; (iii) semi-structured interviews, focus group discussions and (iv) field survey through a structured questionnaire, collection of primary and secondary data and information, and a series of reconnaissance field visits by a team of researchers to the project area. The reconnaissance field visits covered a substantial part of the project area. During the field visit, the consultants interacted with the targeted stakeholders and other concerned personnel of the project.

The reconnaissance field visits included interaction with the BANBEIS officials and targeted stakeholders including ICT and teaching-learning experts and professionals for better and scientific reasoning to formulate the conceptual framework towards the formulation of the detailed methodology of the present assignment. While the conceptual model crystallized different ideas into a simple form for carrying out the study, the detailed methodology provided the modes of implementation including survey design, sampling procedures, preparation of questionnaire, training of enumerators, framing of analytical techniques and the output generation.

- Extensive review of current literature in the forms of text, journal articles, government and development partner's study reports, NGOs and INGOs assessment reports, individual and professional's overview etc.
- Conducting formal and informal interviews with different stakeholders;
- Conducting semi-structured interviews, focus group discussions; KII and Case Studies by developing standard checklist/schedule
- Conducting field survey through structured and semi-structured survey questionnaire
- Knowledge and Experience Sharing consultative workshops for validating the findings

Both primary and secondary data and information were collected from the selected study areas. A series of reconnaissance visits were conducted by the members of the research team in the project area. The reconnaissance field visits covered substantial part of the project area. During the field visits, the researchers interacted with the targeted stakeholders including teachers, and other concerned professionals related to ICT and teaching and learning methods, tools and techniques.

3.2 SOURCES OF DATA

Primary Data

I. Quantitative data were collected through direct interview and observation
II. Qualitative information was collected through conducting some FGDs, Case Studies and KIIs.

Secondary Data

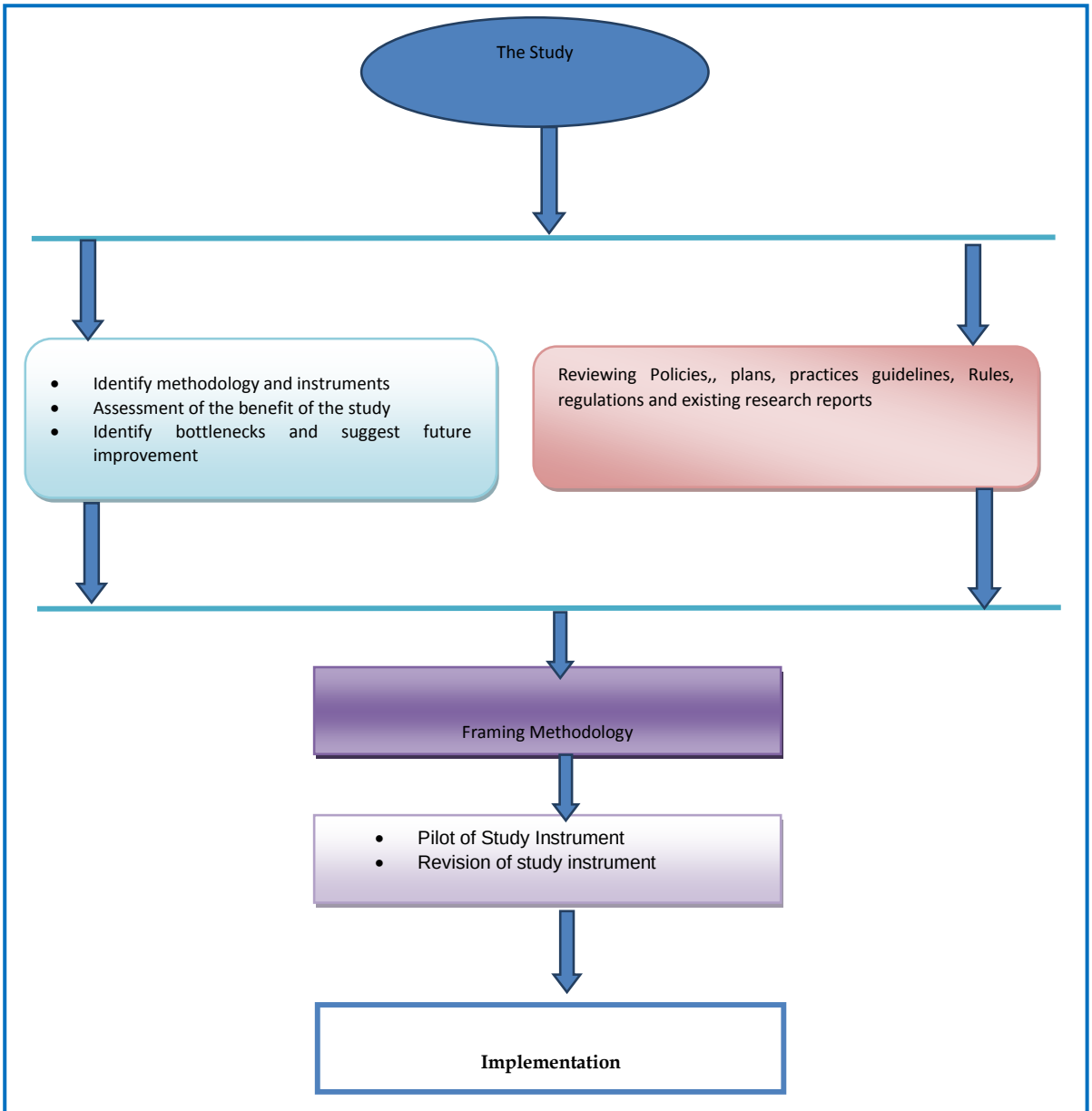
Different existing policies, plans, research reports and good practices reports of different countries were reviewed to understand the existing scenario of higher secondary education

I. Comprehensive and in-depth analysis of different reports related to stock taking on present situation, changing pattern, weaknesses, strength, opportunities and challenges
II. Review of some reported cases to get some distinct ideas relating to the ways, means, challenges and opportunities of quality secondary education using ICT devices

3.3 THE CONCEPTUAL FRAMEWORK

The conceptual framework for the assignment was developed based on the comprehensive reviews of the available literature/documents on the project and based on understanding of the RFP provided by the client. While analyzing the RFP, special thought was put on understanding the objectives, the scope of work, the suggested approach and methodology and the time allocated to undertake the assignment. The conceptual framework thus developed for carrying the assignment smoothly and is shown in the schematic diagram in the following figures, while the salient feature of the methodology followed in implementing the study is presented in the subsequent sections.

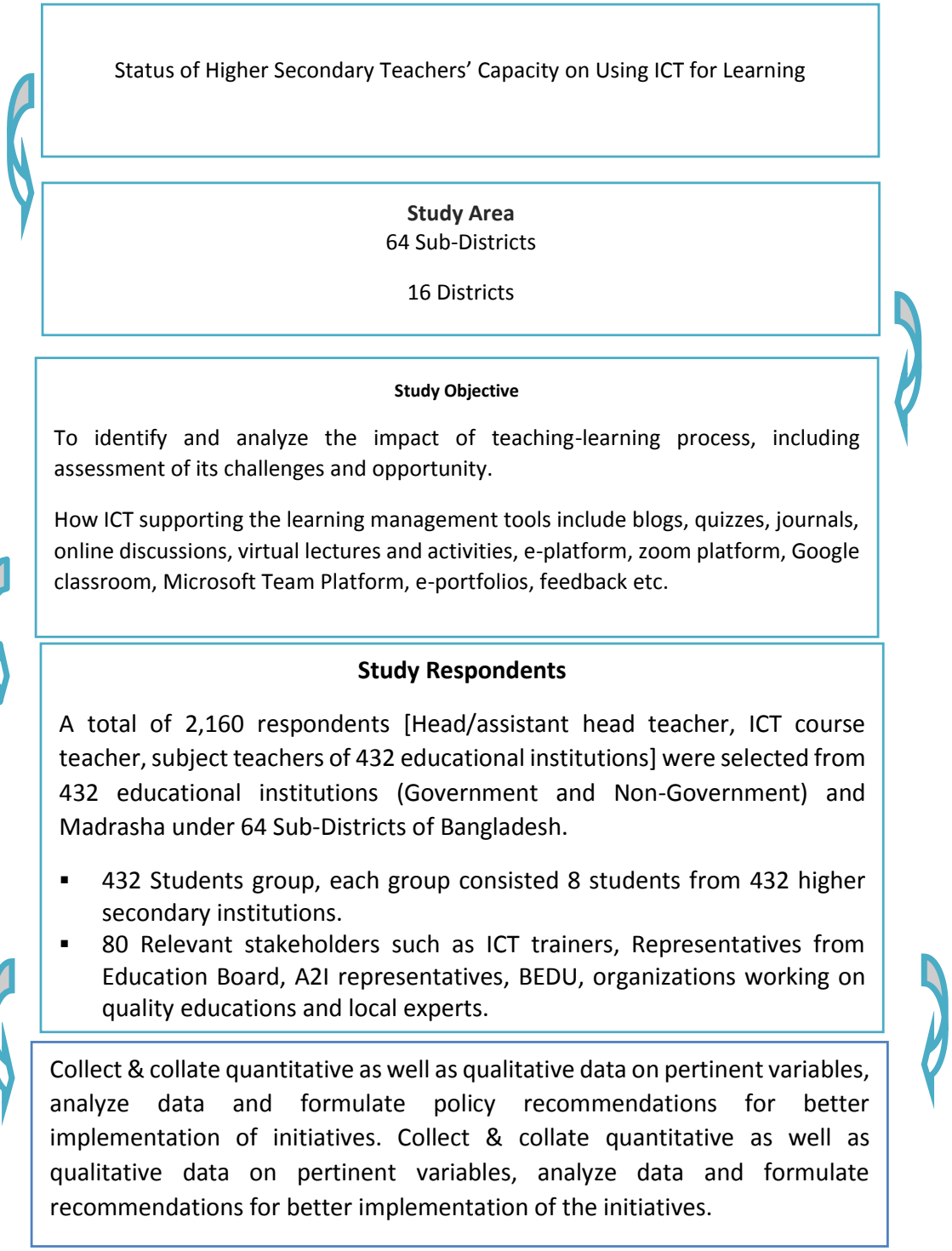
Figure: The Conceptual Model for the study



3.4 STUDY DESIGN

The study area is 64 sub- Districts in Bangladesh. However, a snap-shot idea of the study is presented below:

Figure: Schematic view of the study



3.5 SELECTION OF STUDY LOCATION

The study was conducted in 64 Sub-Districts. These sub-districts are in 16 districts under 8 Divisions of Bangladesh. These 64 sub-districts were selected from 16 districts randomly. Among 64 sub-districts, 48 were selected randomly from the plain land and 2 from coastal area, 4 from *char*, 4 from hill, 4 from Haor and 2 Thanas from 2 City Corporations.

Five Higher Secondary Institutions from each sub-district and 7 from each District Town and City Corporation were selected randomly. Educational Institutions were selected from both public and private category and from Madrasah.

Total Educational Institutions: 432 Public and private category and Madrasah.

Table 1–3.5.1 Sample Selection Considering Geographical and Environmental Position

Sl. No.	Division/Area	District	Plain land Sub-District 48	Coastal Area Sub-District 2	Char Area Sub-District 4	Hill Area Sub-District 4	Haor Area Sub-District 4	Thana from City Corporation 2
1	Dhaka	Tangail Kishoreganj	Tangail-2 Kishoreganj-2		Tangail-2		Kishoreganj-2	
2	Mymensingh	Netrokona Sherpur	Netrokona- 3 Sherpur -4				Netrokona-1	
3	Rajshahi	Sirajganj Joypurhat	Sirajganj-3 Joypurhat-4		Sirajganj-1			
4	Rangpur	Thakurgaon Kurigram	Thakurgaon -4 Kurigram-3		Kurigram-1			
5	Khulna	Chuadanga Sathkhira	Chuadanga-4 Sathkhira-3	Sathkhira-1				
6	Barishal	Barishal Patuakhali	Barishal-3 Patuakhali-3	Patuakhali-1				Barishal-1
7	Chattogram	Feni Bandarban	Feni -4			Bandarban-4		
8	Sylhet	Sylhet Habiganj	Sylhet -3 Habiganj-3				Habiganj-1	Sylhet-1
	Total							

Source:

1. Policy Research Working Paper 6817, The World Bank, Development Research Group Environment and Energy Team, March 2014
2. https://en.wikipedia.org/wiki/Chittagong_Hill_Tracts
3. https://en.banglapedia.org/index.php/Haor
4. https://www.google.com/

Duration

Ten Weeks from Commencement.

3.6 SELECTED LOCATIONS OF THE STUDY

Table 2- 3.6.1: List of Selected Districts and Sub-Districts Under the Divisions

Name of Division	Name of District	Name of Sub-districts
Dhaka	**Tangail**	Sadar, Delduar, Kalihati, Bhuapur
	Kishorganj	Sadar, Itna, Mithamoin, Karimganj
Mymensingh	**Netrokona**	Sadar, Modon, Purbodhola, Kolmakanda
	Sherpur	Sadar, Jhinaigati, Nokla, Sribordi
Rajshahi	**Sirajganj**	Sadar, Sahjadpur, Belkuchi, Rayganj
	Joypurhat	Sadar, Panchbibi, Akkelpur, Kalai
Rangpur	**Thakurgaon**	Sadar, Baliyakandi, Pirganj, Ranisankail
	Kurigram	Sadar, Ulipur, Rajarhat, Chimari
Khulna	**Chuadanga**	Sadar, Alamdanga, Damurhuda, Jibonnagar
	Satkhira	Sadar, Kolaroya, Shwamnagar, Debhata
Barisal	**Barisal**	Sadar, Bakerganj, Ujirpur, Babuganj
	Patuakhali	Sadar, Kolapara, Baofol, Golachipa
Chattogram	**Feni**	Sadar, Sonagazi, Chagolnaiya, Porshuram
	Bandarban	Sadar, Royangchori, Thanchi, Lama
Sylhet	**Sylhet**	Sadar, Dokkhin Surma, Bishwanath, Companyganj
	Habiganj	Sadar, Baniyachong, Madhabpur, Shayesthagonj

Table 3- 3.6.2: Selected Sub-Districts Considering Geographical and Environmental Position

Sl. No.	Division	District	Plain land Sub-District 48	Coastal Area Sub-District 2	Char Area Sub-District 4	Hill Area Sub-District 4	Haor Area Sub-District 4	Thana from City Corporation 2
1	**Dhaka**	Tangail Kishoreganj	**Tangail-2** Sadar, Delduar **Kishoreganj-2** Sadar, Karimganj		**Tangail-2** Kalihati, Bhuapur		**Kishoregan-2** Itna, Mithamoin	
2	**Mymensingh**	Netrokona Sherpur	**Netrokona- 3** Sadar, Purbodhola, Kolmakanda **Sherpur** -4 Sadar, Jhinaigati, Nokla, Sribordi				**Netrokona-1** Modon	
3	**Rajshahi**	Sirajganj Joypurhat	**Sirajganj-3** Sadar, Sahjadpur, Rayganj **Joypurhat-4** Sadar, Panchbibi, Akkelpur, Kalai		**Sirajganj-1** Belkuchi			
4	**Rangpur**	Thakurgaon Kurigram	**Thakurgaon -4** Sadar, Baliyakandi, Pirganj, Ranisankail **Kurigram-3** Sadar, Ulipur, Rajarhat,		**Kurigram-1** Chimari			
5	**Khulna**	Chuadanga Sathkhira	**Chuadanga-4** Sadar, Alamdanga, Damurhuda, Jibonnagar **Sathkhira-3** Sadar, Kolaroya, Debhata	**Sathkhira-1** Shwamnagar,				

6	**Barishal**	Barishal Patuakhali	**Barishal-3** Bakerganj, Ujirpur, Babuganj **Patuakhali-3** Sadar, Baofol, Golachipa	**Patuakhali-1** Kolapara				**Barishal-1** Sadar
7	**Chattogram**	Feni Bandarban	**Feni** -4 Sadar, Sonagazi, Chagolnaiya, Porshuram			**Bandarban-4** Sadar, Lama Royangchori, Thanchi,		
8	**Sylhet**	Sylhet Habiganj	**Sylhet -3** Dokkhin Surma, Bishwanath, Companyganj **Habiganj-3** Sadar, Madhabpur, Shayesthagonj				**Habiganj-1** Baniyachong	**Sylhet-1** Sadar
	Total (08 Divisions, 16 Districts & 64 Sub-Districts)		**48**	**2**	**4**	**4**	**4**	**2**

3.7 SAMPLING METHOD AND SAMPLE SIZE

1. A total of 432 Higher Secondary Institutions were selected randomly from the selected districts and sub-districts. Among the institutions, 1 Madrasah was selected from each sub-district and district town, i.e., 80 Madrasahs were selected in total. Among the rest 352 higher secondary institutions 70% i.e., 246 were private institutions and the rest 30% (105) were public or government institutions. A total of 432 institutional Head Teachers or Assistant head teachers were selected purposively to collect their opinion in this regard through face-to-face interviews.
2. A total of 432 ICT Course teachers were selected purposively to collect their opinion through face-to-face interviews.
3. A total of 1,296 subject teacher (Arts, Science and Commerce) were selected randomly to know their capacity in using ICT in classroom through face-to-face interviews.
4. A total of 432 groups of students (each group consisting of 8 students, 50% boys and 50% girls) were selected randomly from 432 higher secondary institutions to know their experiences about the classes using ICT devices through FGD.
5. A total of 5 relevant stakeholders in each district such as ICT training providers/representatives of education board/A2i representatives/local experts/committee members of the institutions/guardians were selected purposively to search their opinion regarding Teacher Training on ICT and its impact through KII.

3.8 SELECTION OF RESPONDENTS

There were 5,696 respondents in total in this study. The breakdown of respondents was as follows:

Face-to-face interviews were conducted with selected 432 institutional heads, 1,296 subject teachers and 432 ICT course teachers. In total 432 Focus Group Discussions were held with a total of 3,456 students from 432 higher secondary institutions. In total, 80 KIIs were conducted in 16 districts with ICT training providers/representatives of education board/A2i representatives/local experts etc.

Table 4- 3.8.1: Respondent Types and Distribution

At Educational Institution			
Types of Data	**No. in Each Higher Secondary Institutions**	**Total No. for 64 Sub-Districts**	**Types of respondents**
Quantitative Face to Face Interview	**5**	**5 X 432=2160**	▪ Head/Assistant head of -institution ▪ Subject Teachers (3 from each institution) ▪ ICT Course Teacher
Qualitative FGD	**1 group of students [Each group consist of 8 students]**	**01X432=432 group** **432X8=3456 students**	▪ Student from higher secondary Institutions
At District			
Qualitative KII	**5 in each district**	**05X 16= 80**	ICT trainers, Representatives from Education Board, A2I representatives, BEDU, organizations working on quality educations and local experts

****During the selection process of respondents, sex, age, social classes, occupation, income, etc. will be given priority to know different aspects of the issue.***

3.9 DATA COLLECTION PROCESS

The placement of field investigators was started after completion of their training. The trained investigators and supervisors were placed to cover collection of data in each of the study locations. The study supervisors were placed for supervising the data collection and they were responsible for monitoring, data checking and field verification of collected data. The supervisors and field investigators arranged their staying at places of respective study areas. All the field staff covered the study area with required number of questionnaires, checklists, and daily progress reports, manual of data collection, and other documents and articles necessary for field activities.

Under this study, a total of 432 Higher Secondary Institutions including 80 Madrasa were selected randomly from the selected districts and sub-districts. Face-to-face interviews were conducted with selected 432 Institutional heads, 1,296 Subject teachers and 432 ICT course teachers through structured closed and open-ended questionnaires using questionnaire set-1, 2 and 3. In total, 432 Focus Group Discussions were conducted with a total of 3,456 students from 432 higher secondary institutions in accordance with the FGD guideline. In total, 80 KII were conducted in 16 districts with ICT training provider/representative of education board/ A2i representatives/local experts etc.

3.10 QUALITY CONTROL

The Team Leader and other consultants were in constant touch with the Field Supervisors and investigators so that field investigators can seek instructions on the concepts, definitions and difficulties encountered in carrying out the fieldwork under the actual operational conditions. All members of the consultant team undertook monitoring of field activities at randomly selected places to oversee the study activities to ensure quality. All the specialists undertook field visits in selected areas at random to verify and confirm the study findings with the actual situation.

3.11 DATA ANALYSIS

Data Management: Data management, processing and analysis included registration of the questionnaires, code construction, coding, data verification and quality control, data entry, data processing and finally the analysis was done to facilitate the required output.

Data Processing: The data processing involved two important steps. The first step was to categories and the second step to allocate individual answers to them. The purpose of coding was to classify the answered information and data to a question into meaningful categories, to bring their essential pattern.

Data Input to Computer: Data input to computer included (a) developing appropriate computer software program and (b) data entry operation. Keeping the objectives of the study in view, the consultants will use the most suitable software program (Excel and SPSS) as necessary. The specialist in Data Processing finalized a well-organized data entry operation work plan. The entry work ran simultaneously in different computers under the direct supervision of Team Leader.

Data Analysis: All the necessary analysis of collected data were done using SPSS or spreadsheet. In line with the requirements of the RFP, the Team Leader and other consultants of the survey designed dummy bi-variate/multi-variety tables/graphs, which were used by the Specialist in data analyst for analysis of data.

Development of Draft Final Report: Based on the analysis and interpretation, a the Draft Final Report was prepared.

Presentation of Draft Report Findings as per assigned task: Some Key Results of the proposed study are compiled for presentation to the authority (BANBEIS) for necessary feedback.

3.12 LIMITATIONS OF THE STUDY

- The duration or period of the study was not sufficient enough to achieve such a broad objective.
- Due to time constraint and other factors, it was not possible to reach all teachers as intended and thus the interviewers had to find alternative respondents.
- It was had to work in the selected districts and there was no scope for random sampling.
- In some sub-districts, the required number of educational institutions for interview was unavailable. Therefore, we had to cover distributed institutes per district from another sub-district of the same district.
- Some of the respondents were reluctant to give interview without a formal/official letter from higher authority. A few of them refused to take pictures while giving interview.
- Some respondents did not agree to be interviewed without going through and understanding the questionnaire at first. So, there was a need to use personal linkage to influence/pursue them.
- Problems were faced in some women colleges and Madrasahs because the authorities at first did not agree to give permission to hold FGD in their institutions. Later, FGD was done in the presence of their staff/representatives at the venue.
- Classroom observation could have been helpful to collect more findings.
- Some of the respondents were reluctant to provide information because BANBEIS had collected other information in the recent past.
- Some respondents did not want to give full information or tried to hide something since they work in that place. They were afraid of any negative impact or damaging reputation of the institution. Therefore, it was difficult sometimes to get the actual picture.

CHAPTER FOUR

Information about Respondents

Different Kinds of ICT Devices are Used in Higher Secondary Education

Available Facilities at the Higher Secondary Educational Institutions Conducting ICT Based Training

Class Teachers' Capacity (Knowledge, Skill, Attitude and Practice) of Using ICT Device of Online and Offline Teaching

Students' Views of Using ICT Device During Online and Offline Teaching

Management Views of Using ICT Device of Online and Offline Teaching

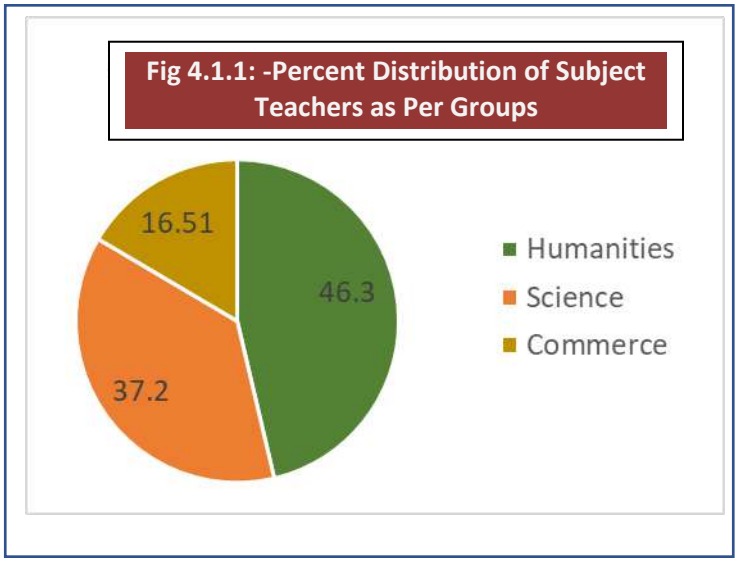
Effectiveness of Using ICT Device in Online and Offline Teaching

Existing Evaluation System and Use of ICT Mechanism

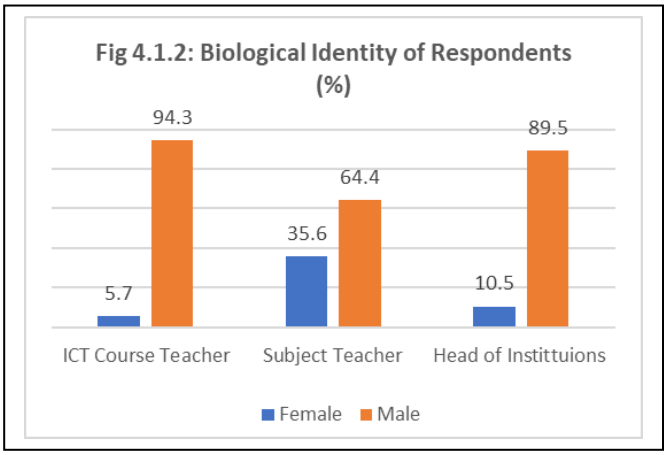
Discussion Based on KII And FGD Findings

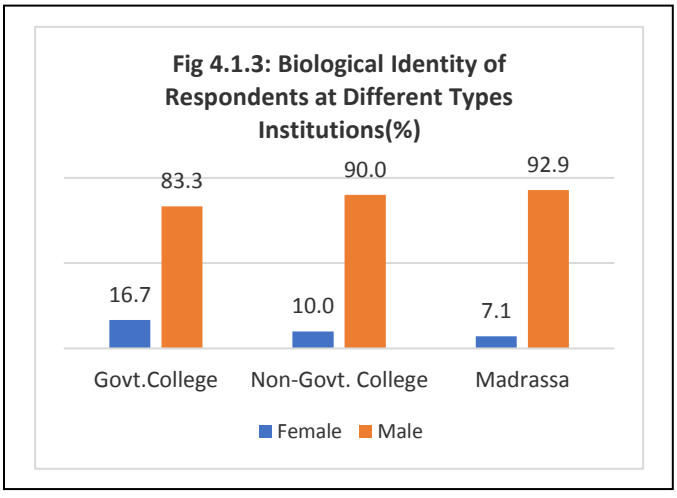
4.1. INFORMATION ABOUT RESPONDENTS

The study was conducted in 432 higher secondary educational institutions, of which there were 80 Madrasahs, 246 Govt. colleges and 106 private colleges. From each institution, 5 teachers were interviewed of which there were 3 subject teachers from Science, Commerce and Humanities groups, 1 ICT course teacher and 1 head of the institution. In some colleges where there was the unavailability of the teacher from one group, teacher from another group was interviewed. Therefore, the number of teachers from each group varied.



During the selection of respondents from each institution, an attempt was made to select male and female respondents equally. However, the number of females as ICT teachers and heads of institutions was very few. About 35.6 percent of female course teachers were interviewed upon their willingness to give interviews and available time.



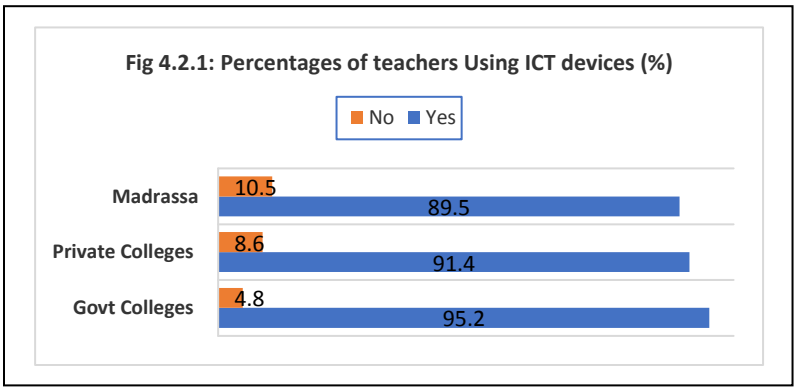


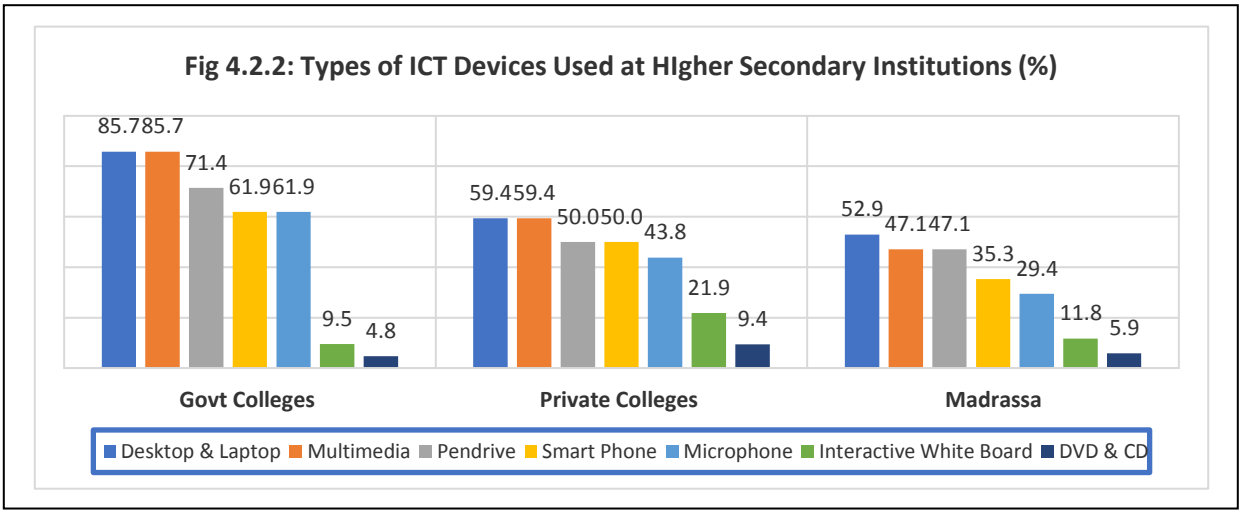
Apart from face-to-face interviews for quantitative data, qualitative data was collected through Focus Group Discussion-FGD with students. In each Higher Secondary Institution under this study, 1 FGD was conducted with students. In each FGD there were 8-10 students from class eleven and twelve. Girls and boys participated in the FGDs equally.

Figure 4.1.3 depicted the male/female ratios of the respondents from the each category of higher secondary institutions i.e. from govt. colleges, private colleges and from Madrassa.

4.2. DIFFERENT KINDS OF ICT DEVICES USED IN HIGHER SECONDARY EDUCATION

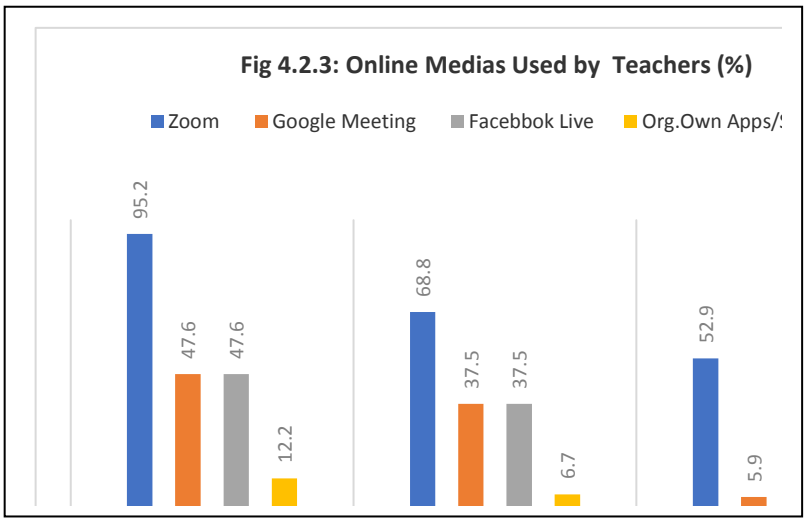
Most of the respondents said that they used ICT devices for teaching at their institutions. More than 90 percent teachers at Government and Private Higher Secondary institutions said that they regularly use ICT devices during their teaching. The number is slightly less in Madrassa. More than 85 percent teachers of that types institutions under this study said that they using ICT devices at class room, where as 10 percent said that they do not use any ICT devices for their teachings.





All the respondents were asked about the types of ICT devices that are used in their respective institutions frequently. It was observed that most types of ICT devices are being using in Govt. Institutions. More than 85 percent Govt. Higher Secondary institutions under this study said that they have laptop and multimedia at their institutions. More than 60 percent said to have microphone, smart phone etc. More than 50 percent private colleges and Madrassa said that they have desktop or laptop for using at their institutions. Multimedia is also an available ICT device at private colleges and Madrassa. About 50 percent and 47 percent Private colleges and Madrassa said that they have multimedia respectively.

Figure 4.2.3 revealed that types of online medias using frequently by the respondents. In all three types categories of higher secondary institutions zoom is the most frequently used online media by the respondents. However, the percentage of using zoom is a bit high in govt. colleges than the private colleges and madrassas. Google meet and facebook live also being use frequently for teaching purposes by the teachers. Very few said that they have own institutions website for using in teaching.



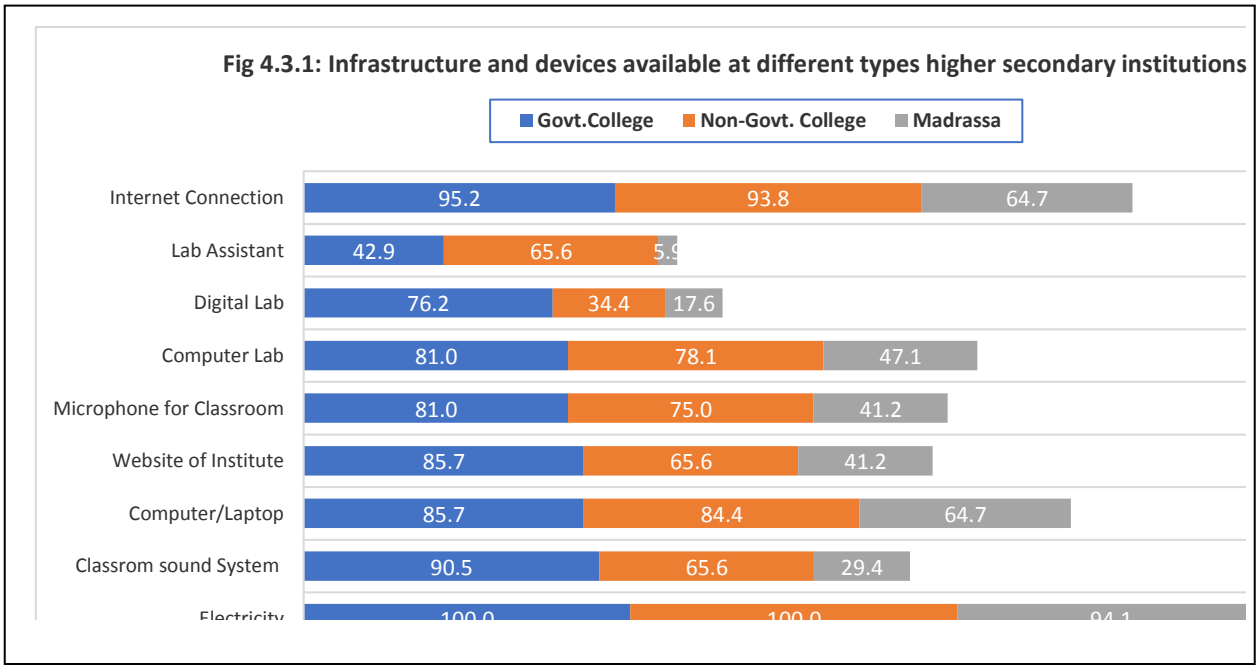
4.3 AVAILABLE FACILITIES AT THE HIGHER SECONDARY EDUCATIONAL INSTITUTIONS IN CONDUCTING ICT BASED TRAINING

More than 20 percent Govt. higher secondary educational institutions under this study have 16 to 20 classrooms, followed by 54.8 percent that have 10 to 15 classrooms in their institutions. In most private colleges under this study i.e. 35.9 percent have highest 10 to 15 classrooms at their institutions. Some institutions i.e., about 44.9 percent have very insignificant number of classrooms such as between 5 and 9. About 1.1 percent institutions have adequate number of classrooms i.e., more than 20. In most of the madrassas i.e. in 42.6 percent Madrassa's the number of classrooms are 10 to 15. The rest have different numbers of class rooms, i.e., about 36 percent have 5 to 9 and about 19 percent have 16 to 20 classrooms at their institutions.

Table 5-4.3.1: Percentage of Number of Classrooms

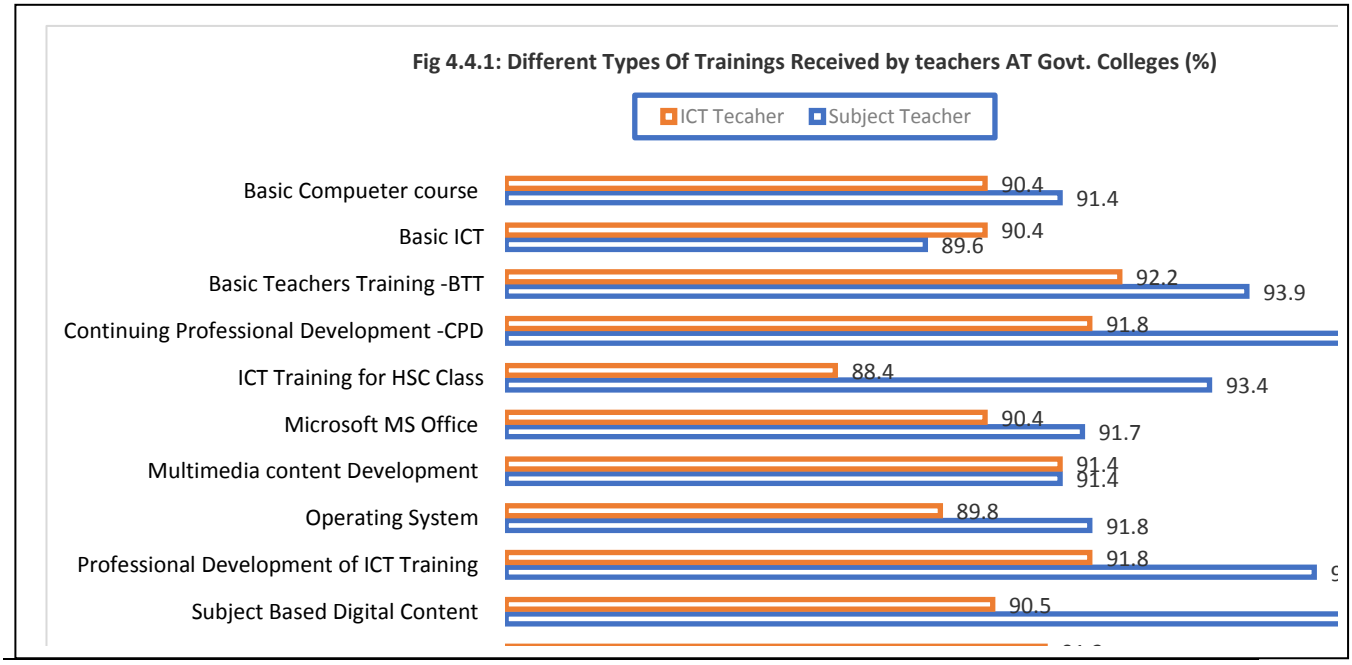
	5 to 9	10 to 15	16 to 20	>20
Govt. College	15.5	54.8	24.6	5.1
Non-Govt. College	44.9	35.9	18.1	1.1
Madrassa	35.9	42.6	18.8	2.7

It is evident from the study that in more than 90 percent government colleges have electricity, multimedia, classroom sound system and internet. And more than 80 percent government colleges have other digital facilities that is computer lab, digital lab, website, computer and laptop. Although all the institutions have electricity and internet frequent power cut and poor speed of internet is a big problem in enjoying such opportunities.

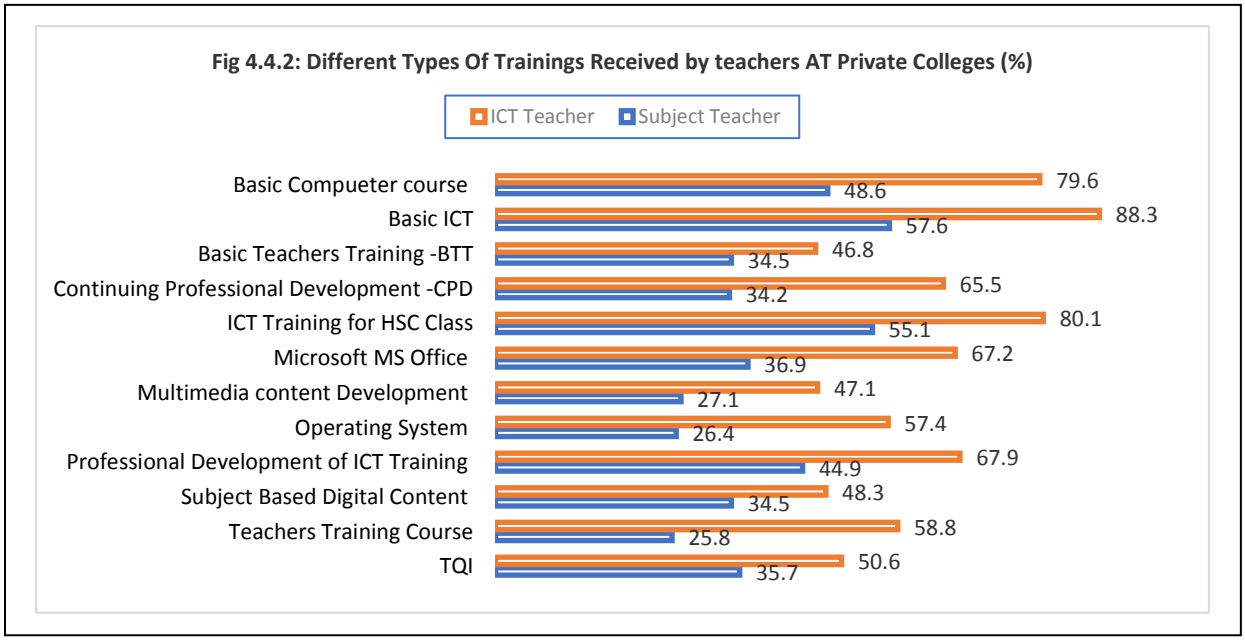


ore than 80 percent private colleges have multimedia, internet and laptop facilities. Very few numbers private institutions under this study said that they digital lab. All the madrassas under this study more or less have same facilities and devices as the government and private institutions have. However, the percentage is less than others. The figure 4.3.1 depicted types of devices available at different types institutions.

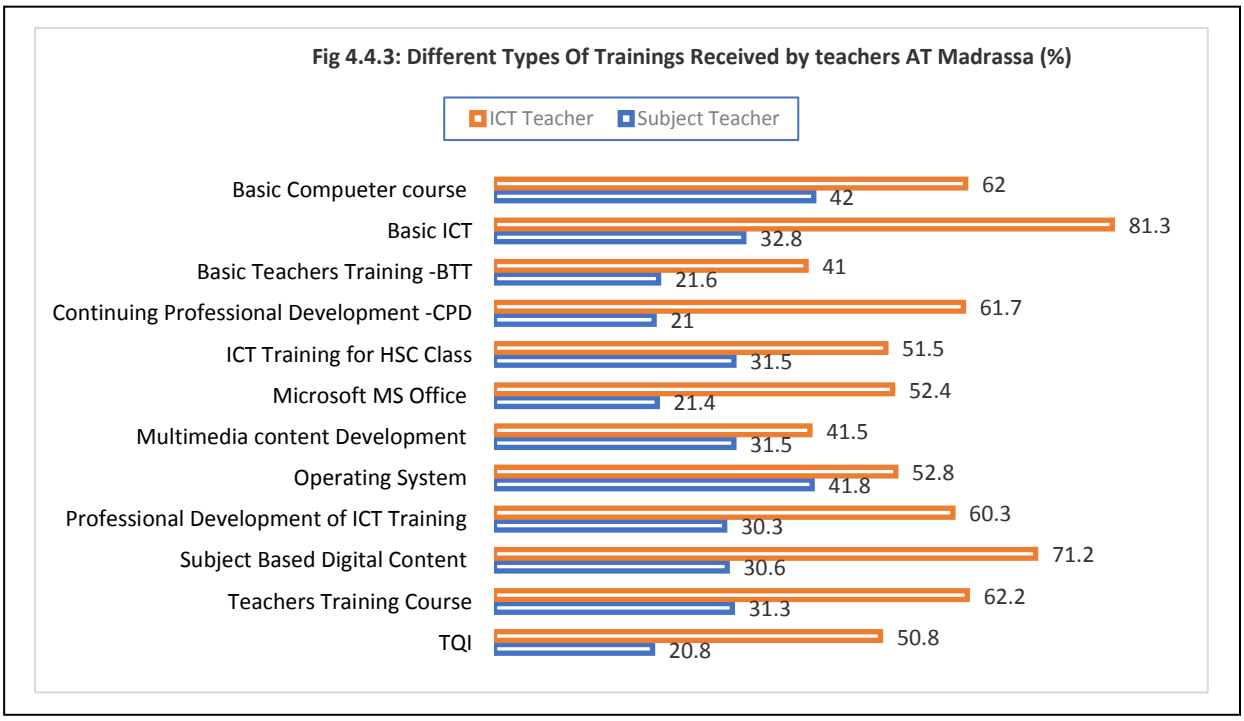
4.4 CLASS TEACHERS' CAPACITY (KNOWLEDGE, SKILL, ATTITUDE AND PRACTICE) OF USING ICT DEVICE IN ONLINE AND OFFLINE TEACHING



All the teacher respondents were asked whether they received training during their professional tenure. It was revealed that all the teachers received some sort of ICT trainings. Some teachers received two or three ICT trainings from different institutions with different titles. Compiling all the data it was found that BASIC Computer course is the most common. More than 90 percent



ICT teachers and subject teachers of Government colleges have Basic ICT trainings. In the private higher secondary institutions More than 40 percent and more than 70 percent received basic ICT



trainings. The percentage is low in Madrassas which is more than 40 and more than 60 for subject and ICT teachers respectively. The basic ICT course came as a common training they received, as they also informed that they received basic ICT training related to teaching their students and also on conducting examinations and assessing students' performance. This is the highest number among the trained teachers who received such training. The trainings include subject-based digital content sharing, operating and handling multimedia, professional skill development on ICT etc. Different types of trainings received by subject teachers and ICT teachers at Govt. Private Higher Secondary institutions and Madrassas are depicted in the figures 4.4.1, 4.4.2 and 4.4.3.

Table 6: (4.4.1) Name of Training Institutions

	ICT COURSE TEACHER	SUBJECT TEACHER
Bangladesh Compouter Council	54.3	54.3
BENBEIS	5.4	1.4
Madrasha Techer's Traning Institute (MTTI)	1.4	1.4
Department of Youth Development	1.4	1.4
Directorate Of Secondary & Higher Education (DSHE)	2.9	2.9
Higher Secondary Teachers' Training Institute	1.4	1.4
Divisional Teachers Training College (TTC)	18.6	24.3
ICT Ministry	2.9	2.9
Politechnic Institute	2.9	2.9
Ministry of Education	1.4	1.4
National Academy for Computer Training and Research (NACTAR)	1.4	1.4
National Academy for Educational Management, illustrated as NAEM,	1.4	1.4
National Training & Research Academy (NATRAMS)	3.1	1.4
Upazila Education Office	1.4	1.4

About 54 percent teachers said that they received training from Bangladesh Computer Council. The second highest number, that is, about 19 percent of ICT course teachers and 24 percent of subject teachers said that they received training from divisional TTC, i.e., Teachers' Training College. Apart from that, there are some other training institutions from where some of the teachers received their training. The most common names mentioned by the respondents are presented in the table 4.4.1. Among these institutions, there are NAEM, BANBEIS, NATRAMS, NECTAR etc.

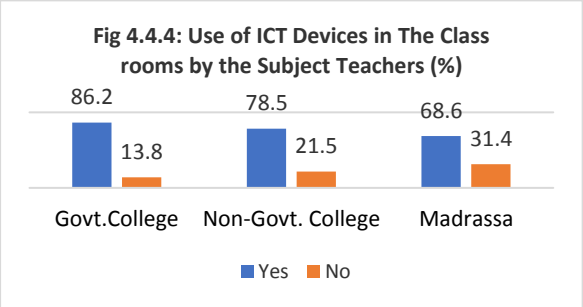


Fig 4.4.4: Use of ICT Devices in The Class rooms by the Subject Teachers (%)

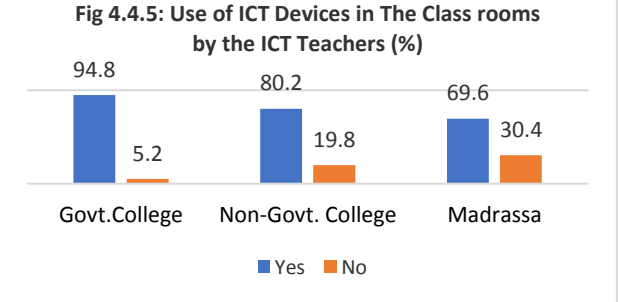
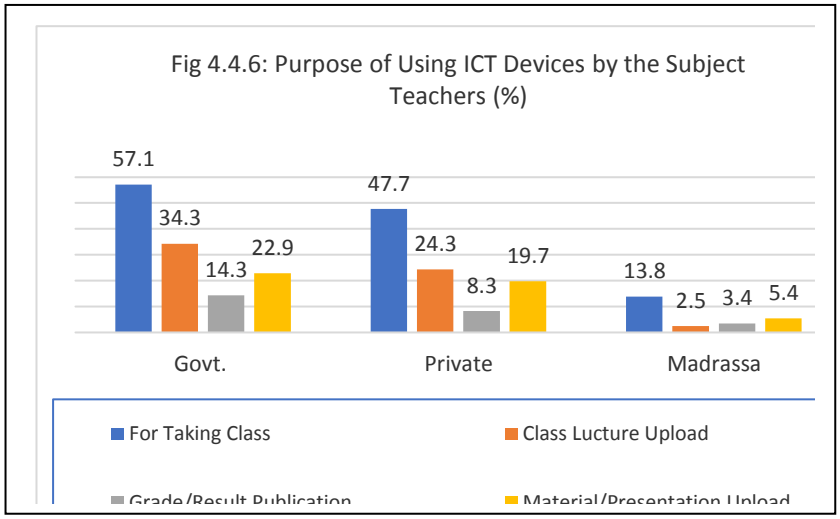


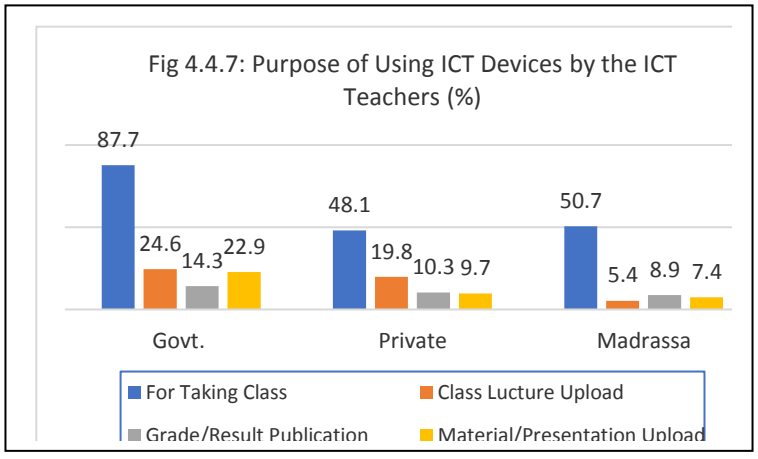
Fig 4.4.5: Use of ICT Devices in The Class rooms by the ICT Teachers (%)

Figure 4.4.4 and Figure 4.4.5 show that the majority of the ICT course teachers and subject teachers are using ICT devices in their classes. However, the data do not

reveal if they use these devices regularly or not. More than 90 percent ICT teachers of Government colleges said that they using ICT regularly. Where as 86 percent subject teachers said they using ICT devices. The percentage of teachers using ICT in classes in private institutions and madrassas also satisfactory that is more than 65 percent.

Figure 4.4.6 stated that most of the subject teacher are using ICT devices for many purposes. The majority of respondents said that they are using ICT devices for conducting classes. It was observed that the proportion of ICT course teachers is more than that of the subject teachers when it comes to taking classes using ICT devices (Figure 4.4.7). Uploading class lectures is another purpose they use the devices and online media for. In the case of uploading reading materials and presentations, the number of subject teachers is more than that of the ICT teachers.





It was observed from the survey data that both the ICT course teachers and the subject teachers are using online platforms for delivering lectures and other professional purposes. They said that using of online platforms for conducting classes and other academic activities has increased since the Covid-19 pandemic time. Almost all the teachers said that they conducted classes through online platforms during Covid-19 and lock down periods. Even, till today, many teachers are using online platforms for different academic purposes.

Most of the teachers use Zoom apps for taking classes. Facebook live was the second highest option used by some of the teachers. Others said that they have their own institutionally subscribed website for taking classes and uploading contents and conducting other academic activities. Google Meet is less frequently used as online platform by the teachers.

4.5 STUDENTS' VIEWS ON USING ICT DEVICES DURING ONLINE AND OFFLINE TEACHING

In each of the 432 selected higher secondary institutions, 1 FGD was conducted with the students. Each FGD had 6-10 students from Class XI and XII. They mainly discussed class operating methods, use of ICT devices by concerned teachers and quality of education.

Most of the students agreed that they enjoy their classes more when the teachers use ICT devices. They further said, during offline classes, most of the time the teachers only follow the lecture methods in their teaching, which is monotonous for the participants. Some students claimed that they even feel drowsy during class time when classes are conducted in offline lecture method. When teachers use ICT, they can get better involved and the class environment becomes participatory in nature. Therefore, they feel more interested to join online classes and exchanging their own ideas and views with teachers. Very few students stated that although it is enjoyable to learn academic knowledge through ICT devices, sometimes it creates problems especially when they confront slow internet speed, lack of access to the internet as well as fluctuation of electricity.

It is further evident from the findings that in some instances, some teachers cannot take classes as per their expectations. For example, a teacher prepared digital content for his/her class and took preparation accordingly, but while proceeding to conduct the class, the multimedia might not be working or disturbing and the teacher is unable to fix it. So it's created a great problem. There are other reasons too, like internet connectivity, availability of computer devices, availability of stable electricity etc. However, most of the respondents said that different dimensions of technologies are making their education more enjoyable and effective, and they are now more attentive to their classes. Few students, on the other hand, complained that it might be more enjoyable if they could operate technology supported devices by themselves in the classrooms, as currently only teachers are using technology supported devices in the classrooms. It is further revealed from the study that most of the students were lively, and they seemed to enjoy their classes. In some government colleges, some classrooms are large in size and students' numbers are beyond manageable, many students, especially those who are sitting on the back benches are unable to communicate with class teachers and it happens due to a lack of logistic facilities like loudspeakers, microphones etc. It was also observed by some respondents that when teachers were playing some videos or animation, students were getting more interested to watch them. Some respondents also shared their experiences which was very encouraging as they were very prompt to have the learning outcome, which made some outstanding impacts on their learning efforts.

On the contrary, some respondents said that sometimes teachers highlight their content and present it too fast, and in many instances, they hardly wait for students' response or reaction to it. After highlighting and presenting the slides, some teachers interpret them from an in-depth and analytical perspective, but other teachers hardly do that, which actually creates differences. Even if some of the students ask any questions or ask for further clarification/interpretation/explanation, some of the teachers show their reluctance and the concerned teachers hardly give time after class time to address the students' queries. According to the student respondents, it is also necessary for the teachers to address all the identified inconveniences caused, otherwise only the use of ICT supported online platforms cannot improve the teaching and learning methods for the students. They also said that sometimes some teachers prepare their digital content from sources other than textbooks, which is good for the standard knowledge-sharing process. However, often they fail to link between the content's standard and student's absorbing capacity and students become a bit puzzled during such kind of knowledge sharing sessions. Some students complained that in some instances, they do not have the opportunity at educational institutions or home to understand many lectures or contents with their limited knowledge as teachers do not have personal arrangement for supporting the students individually or group-wise. Therefore, it's the prime responsibility of educational institutions to facilitate all kinds of facilities for better interaction between teachers and students. They also recommended having better-equipped classroom facilities including adequate computer labs, multi-media and other logistics.

4.6 MANAGEMENT VIEWS ON USING ICT DEVICE IN ONLINE AND OFFLINE TEACHING

The selected institutions under this study were inquired about the number of teachers who received ICT training. Most of the institutions' management committees informed that, on average, the number of ICT-related training received by teachers vary between 1 and 10. However some said number of teachers received trainings is in between 11 and 20.

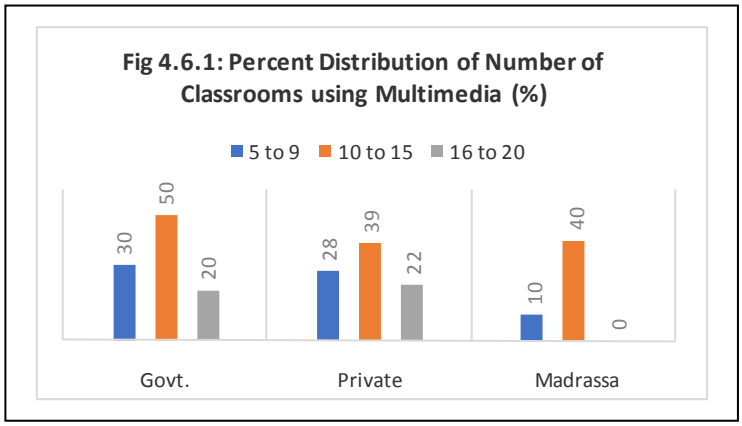
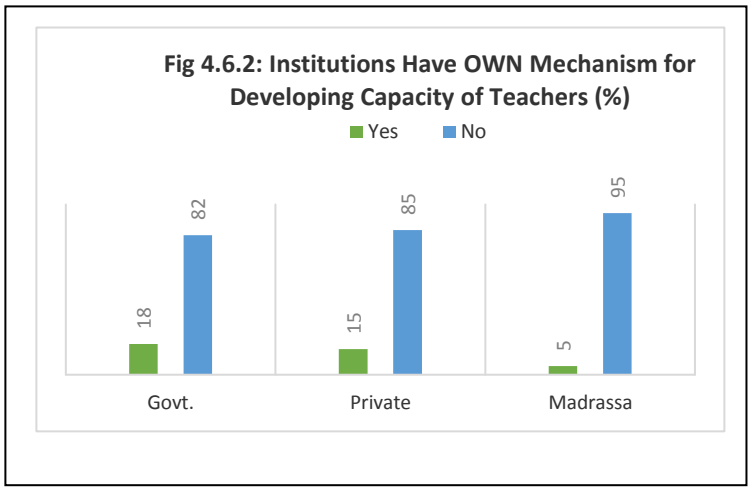


Figure 4.6.1 stated that about 50 percent Govt. institutions have 10 to 15 classrooms which are supported by multimedia facilities followed by 30 percent institutions that have fewer numbers of classrooms supported by multimedia that is 5to 9 and about 20 percent stated that they have 16 to 20 classrooms with multimedia facilities. The private institutions and Madrassa also have class rooms with multimedia facility. The number varied from 5 to 20 as showed in the figure 4.6.1.



About 18 percent govt. institutions and 15 percent private institutions management/authority stated that they have their own mechanism for developing capacity of the teachers. They have their internal orientation and training program to train their teachers. However, the majority (82% and 85%) stated that they do not have their own resources for enhancing capacity of the teachers. The management/authority also informed that they do not have enough budget for maintenance of the devices that support online activities. Moreover, their instructors and technicians face many problems in operating such devices. Some devices do not function properly and the management authorities are unable to replace them due to financial and resource constraints.

4.7 EFFECTIVENESS OF USING ICT DEVICES IN ONLINE AND OFFLINE TEACHING

Almost all the teacher respondents informed that use of ICT devices in the classrooms increases students' capacity and learning quality. It is a relatively improved and sophisticated means to enhance student's quality in comparison to other teaching-learning methods. Only lecture based teaching-learning methods often make the students inattentive and less serious to their tasks, if the means and content are not interesting. Moreover, offline conventional lectures (without the support of ICT and related devices) lectures need to explain more by the teachers with a lot of exercises either on blackboard or whiteboard, which is often time-consuming. Therefore, using ICT, presenting with the support of multimedia make the lessons easier for both the teachers and students. However, there are opposite opinions too. Some teachers opined that using ICT and online platforms in conducting classes might divert students' attention to elsewhere. Some of the students may skip their lessons and may get indulged with chatting through social media etc. Even, in some instances, they browse other non-textbook-related content but remain engaged in the on-line classrooms. These also decrease their

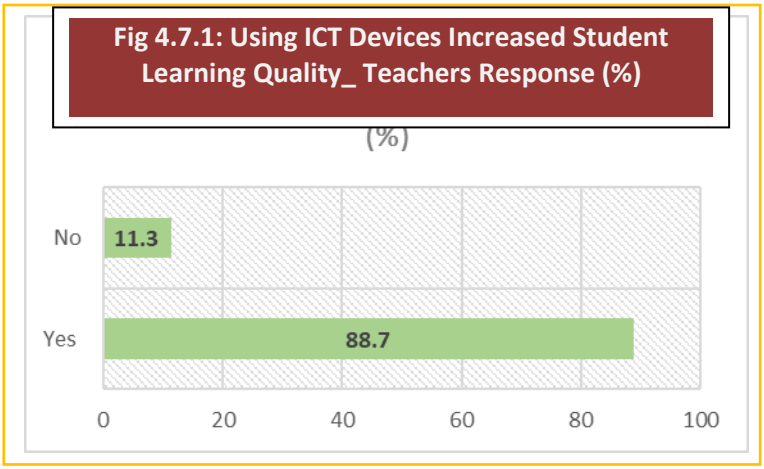


Fig 4.7.1: Using ICT Devices Increased Student Learning Quality_ Teachers Response (%)

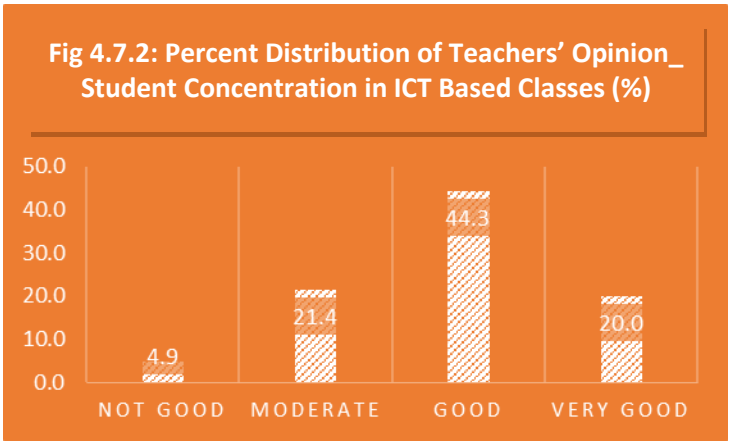


Fig 4.7.2: Percent Distribution of Teachers' Opinion_ Student Concentration in ICT Based Classes (%)

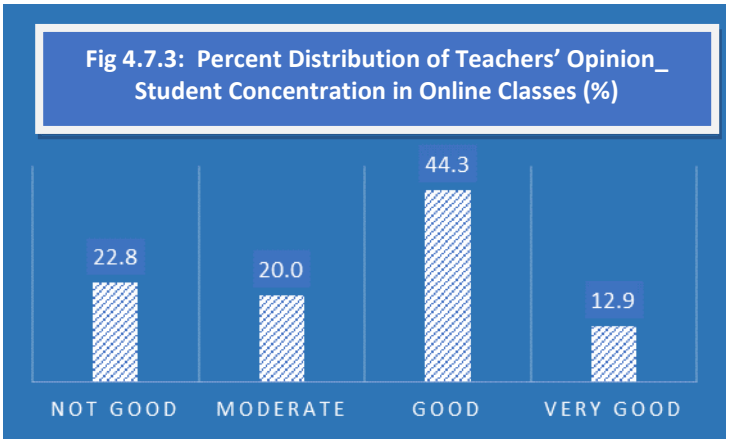
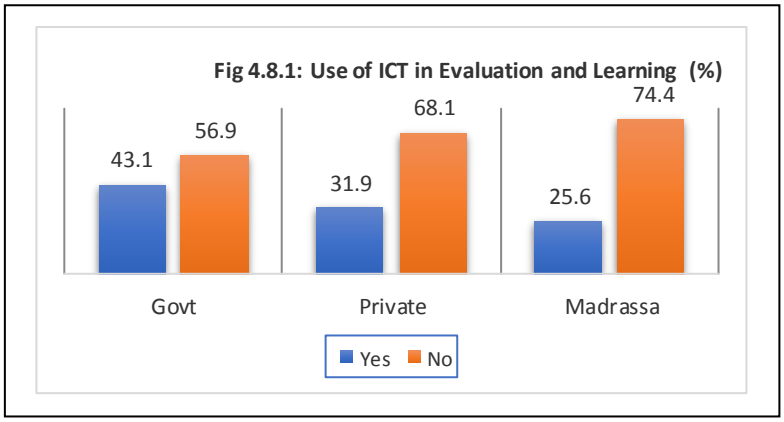


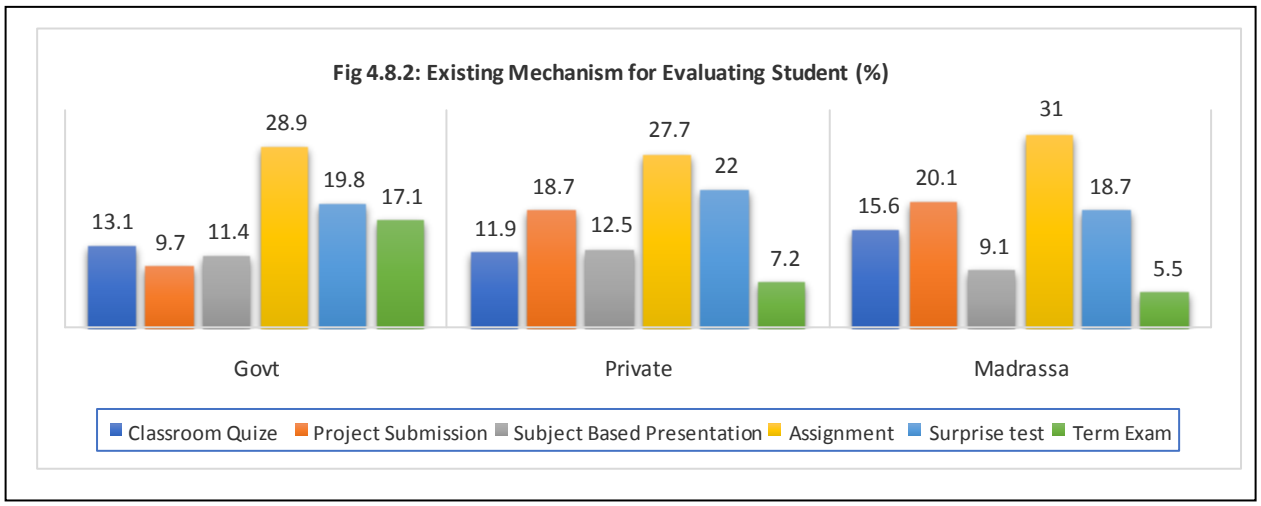
Fig 4.7.3: Percent Distribution of Teachers' Opinion_ Student Concentration in Online Classes (%)

interest and concentration from real learning. As high as 44 percent of teachers informed that students' concentration is good both in online and offline classes when ICT devices are used. However, about 20 percent and followed by 13 percent informed that students' concentration is very good when the desired type of ICT supported devices are used for conducting classes both offline and online respectively. About 22.8 percent of teachers, on the other hand said that it's very difficult to assess the students' concentration when they are attending online classes. It is also very hard for a teacher to monitor all the students' activities through a digital lens even though it is more difficult to assess the students' behavior and mental state. Some teacher respondents said that the evaluation of students after online classes showed that some of the students were not concentrating on the class seriously.

4.8 EXISTING EVALUATION SYSTEM AND USE OF ICT MECHANISM

As many as 43.1 percent of teachers and heads of Govt. institutions said that they use ICT devices for evaluating their teaching and learning performances. However, they also opined that these are mainly for taking attendance and doing grades after conducting the examinations. They further said if they had enough desktops or laptops, perhaps they could use these devices for taking surprise tests. Less than 35 Percent Private institutions and 30 Madrassas said that they using ICT for evaluation process. However, they are not very clear in describing what types ICT they use for what types of evaluation.





Regarding question about types of existing evaluation system most of teachers said that assignment and term exams are the most common. Assignment system increased during the COVID-19 periods. However, they said that surprise test is being also followed for evaluating the student. Taking a surprise test or other evaluation can be more innovative than the traditional question-answer type of evaluation.

At present different types of evaluating mechanisms are in existence at the higher secondary institutions as identified through this study. The most common type is term examination. After a certain period, authorities conduct physical examinations based on a certain curriculum and students' suggestions. Classroom quizzes are another method used at regular intervals in the institutions. Some teachers said that they take subject-based presentations and assignments on topics. Subject-based presentation needs the use of multimedia and ICT supported devices. This is a very effective method of evaluation, and all the students are used to this system. But this kind of assessments and evaluations are not done frequently, because all the institutions do not have adequate ICT supported devices and related facilities in this respect. Figure 4.8.2 showed different types of evaluation mechanism presently using by different types of Higher secondary institution i.e. at Govt, private institutions and at Madrassas.

4.9 DISCUSSION BASED ON KII AND FGD FINDINGS

A total of 432 FGD was done in 432 Higher Secondary Institutions. That means one FGD was done in each institution. Total 3456 students participated in 432 FGDs. Among the total number of students participated, 50% were boys and 50% were girls. The students for the FGDs were randomly selected from each institution.

In total 80 KIIs were done in 16 districts with ICT training providers/representatives of education board /A2i representatives, local experts and managing committee members.

> When I attended in my biology class, the teacher showed us an animation of different biological anatomy and physiology, which not only helped to have practical knowledge, also created lot of interest amongst us. Though teacher took this ICT supported classes only once or twice in a week, I eagerly wait for this environment which enabled us to remember the content exceptionally, which is very unlike to conventional classrooms where there is no ICT supported devices. Subject like biology become easy to me when teachers explain it showing the multimedia presentation or through animation. I think at least in science classes teacher should use ICT devices for better and in-depth understanding of contents.
>
> ***Student of XII***
> ***Tangail College/Kalibari***
> ***Tangail***

The summarization of the FGDs and KIIs stated that Flexibility in developing teaching contents, texts, audio-video materials, and documents as part of easy understanding by teachers is very important for information preservation, information sharing and promotion of the modern education system. There is some flexibility that already has been made in some of the institutions and the process is going on in most of the institutions covered in this study. Flexibility made in terms of accepting the realities relating to storage of textbooks, course materials, documents and so on. Now, teachers can collect and use information from the internet through Google, MOOC, MOODLES and many other platforms. Moreover, open educational resources are available for supporting smooth teaching and knowledge sharing. Digital contents have become easy to understand and informative than earlier, because it helps to present easily and through different methods e.g., video/audio clippings. Students can prepare slide presentations in PowerPoint on any course topics. Use of ICT devices has increased in online class, multimedia class and practical class, especially during the pandemic situation. However, in some institutions, there is yet to make some flexibility. Lack of adequate ICT devices, weak internet connectivity and lack of enough training are some of the burning challenges in ICT supported teaching and learning system.

Use of soft copies through pen drive, modem, CDs, email, and information sharing through several digital platforms, blue truth/Wi-Fi etc. has increased the ICT supported teaching and learning system. Moreover, a keen interest of teachers and students has also developed in these newly introduced systems. It is easier now to send information and data about the institution to the concerned Education Board and National University. Students can collect, store, and share information more easily than earlier. Flexibility is brought mostly in preparing

or recording lecture sheets and other course materials. It would be more helpful if flexibility can be brought in other matters too.

Most of the respondents of all categories opined that the college authority and concerned administration should realize the importance of using ICT in teaching learning competency. Proper, need based and effective training should be given to teachers and some members of the management team so that they have thorough knowledge and skills relating to ICT-supported teaching and learning methods. Adequate funds/resources should be allocated in this regard. Most of the students said ICT devices should be used regularly for better learning from class eleven. Some of them said it should be started from the secondary level so that they have orientation from an early age, and it will help them to adapt themselves to the modern education system in future. In some institutions there is only one lab with insufficient computers and other ICT facilities. Therefore, they do not have the scope to use ICT devices in their classroom.

> When teachers take classes using multimedia and digital content, sometimes they give too much information, which is very difficult to remember and as the teacher never provide any soft copy of the lecture, it become very difficult for me to study the lesson at home. I do not have any laptop or desktop and internet connection at home. If I try to search the lecture content in my smart phone, parents think I am not studying but passing time on my phone. It will be great if the teachers provide hard copies of lecture.
>
> ***Student of class XI***
> ***Alamdanga Govt. College/Alamdanga Chuadanga***

Traditional ICT devices are enough for conducting ICT-based learning in Institutions. However, devices should be set up in the classroom so that students and teachers can use it easily. Especially, teachers and students of rural and remote areas face more problems in using ICT devices. Therefore, ICT lab and capacity development programs should be arranged more in those areas. According to the respondents, in most institutions, the available ICT devices are not enough in comparison to the number of teachers and students. Even multimedia is not available in all classrooms. Students should be allowed to use ICT devices every day and they should develop skills in operating those devices. ICT-supported education cannot be fruitful without learning it practically. Therefore, there is a need to evaluate the students' practical and real needs to be addressed by using ICT supported devices.

According to the participants, the opportunity to learn in a person's own place/surroundings instead of going to school is a positive thing about online classes. They opined that online class is more convenient for learning/education because students/teachers can share different information/documents on screen. Online class can be recorded and watched again.

On the other hand, a significant number of respondents of all categories highlighted the lack of scope for direct communication, contact or queries to the teacher as weak points of the online class. Therefore, they prefer physical presence in the classroom to online education. They also commented that more expenditure and costs related to paying the internet bill is another negative side of online classes. Students do not have sufficient or necessary devices of their

own. Weak internet network or internet connections are also some of the burning problems for participating in online classes. Some students concentrate online gaming or chatting through Facebook/YouTube/WhatsApp/Viber instead of attending online classes. Excessive use of different devices may cause problems of eyesight as well as it can be one kind of addiction, which needs to be overcome by teachers and the management/authority.

The negative impact of ICT devices on students as observed by parents and teachers are:

- Abuse of ICT devices/internet
- Internet, device or gaming addiction
- Tendency of forgetting things/not able to remember
- Increasing mental health problems

CHAPTER FIVE

Challenges in using ICT devices

5.1 CHALLENGES FACED BY TEACHERS, STUDENTS AND INSTITUTIONS IN USING ICT DEVICES

Almost all the teachers who are conducting their classes by using ICT claim that they do not have enough technical expertise. At their institutions, there is neither any permanent technician nor lab attendant for solving the problems of different devices efficiently. So, if something goes wrong with devices or internet connectivity, interruption happens and no one in the college can resolve these problems immediately. These kinds of problems interrupt the normal flow of teaching-learning and discourage teachers to integrate ICT into their lesson plans. Sometimes, they try to solve some problems without expertise, but it can affect if they destroy any device.

Challenges Identified by the Teachers
Insufficient Device
Insufficient Training
Fluctuation of Electricity
Costly
Available Device's low quality
Lack of Knowledge of Student about ICT
Lack of Maintenance of devices
Lack of skilled teachers
Insufficient Spaces in classroom
Poor internet connection
Unavailability of ICT materials
Lack of interest of student about ICT classes
Lack of Digital lab
Device/student ratio in digital lab is low

It was also found from the findings that many students face the same problem in their classroom. In their view, sometimes teachers face challenges to operate the devices, and they call another teacher from another class who has better knowledge about that. When those teachers come to solve the problem, both the classes get hampered on a simple issue. They agreed that if there is a technician who can look after these issues, teachers could concentrate on their teaching more seriously. At the same time, the students could get full attention in classrooms.

Challenges Faced by the Institutions
Inadequate space in classroom
Unavailability of quality ICT Trainers for training at local level
Unavailability of independent large classroom for conducting ICT supported classes
Low budget for maintenance of devices
Shortage of good quality devices
Frequent load-shading of electricity
High Cost of internet Services
No separate and independent facilities and devices for student's practicing (individually of group-wise)
Lack of reading materials
Lack of technicians and lab=attendant for maintaining the devices
Overuse of free WIFI
Unavailability of hardware materials
Lack of skilled teacher for language programing and conducting ICT course

Students from the science group said that they do not have their own devices to practice at home. At the same time, their educational institutions do not have enough devices for doing practice after classes. They further said that in their syllabus there are chapters on computer language programming. However, teachers are not well capable and competent of explaining some of the lessons without ICT supported devices, which can help to download the latest knowledge and skills for sharing. Educational institutions should have taken initiatives for increasing such facilities by providing adequate ICT supported devices so that teachers can share global standard skills and knowledge among their students.

Challenges Faced by the Student
No infrastructure
Lack of skilled teachers
Don't have own devices for practice
Insufficient reading materials
Load shedding
Lack of sufficient devices in classroom
Weak internet connection
No space and opportunity for practice
Mechanical and electronic disturbances of devices while conducting classes

The management representatives of the institutions said that they have a number of challenges regarding using ICT devices. Handling and maintenance of the devices are of great challenge. They do not have any technicians and no specific budget are allocated annually for the maintenance of the devices. Managing large and adequate space is another challenge for digital and computer-supported rooms. Managing destroyed and non-functional devices also create hazards and problems in many instances. Lack of willingness of teachers to use ICT devices as well as receive the skill training is also a problem.

CHAPTER SIX

Areas of Improvement in Using ICT Device in Online and Offline Teaching

Use of ICT in Formative and Summative Assessments and Its Effectiveness

The Scope and Potentiality to Improve the Capacity of Higher Secondary Teachers For Using ICT Devices In Learning

Recommendations

Conclusion

6.1 AREAS OF IMPROVEMENT IN USING ICT DEVICE IN ONLINE AND OFFLINE TEACHING

- Provide capacity building/training facilities for all teachers on short-term and long-term basis.
- Ensure follow-up online and offline training for teachers.
- Provide practical demonstration and training/orientation of teachers on how to take online classes.
- Introduce training/orientation of teachers on basic ICT learning e.g., PowerPoint slide preparation, MS word, operating computer/laptop/multimedia etc.
- Make available orientation and mentoring of all students on basic computing skill.
- Arrange ICT seminar and discussion for skill development.
- Take measures to establish/improve digital labs.
- Ensure presence of sufficient number of skilled instructors.
- Ensure regular maintenance of ICT devices.
- Increase skilled human resource and digital devices.
- Organize regular ICT class, test/exam and assignment.
- If possible, establish separate ICT building and facilities and maintain regular care.
- Provide smart TV, multimedia projector, good quality computer, interactive white board, microphones, pen drive, smart phone, camera/soundbox etc. in each classroom.
- Ensure uninterrupted internet/Wi-Fi connection.
- CD/software should be kept for each subject so that burden of textbooks is reduced.
- Need to make students interested in classroom education and avoid coaching centers.

Government Institutions

- Ensure presence of sufficient number of skilled instructors.
- Ensure regular maintenance of ICT devices.
- Increase skilled human resource and digital devices.

Non-Government Institutions

- Increase capacity of teachers on basic ICT
- Ensure implementation of ICT devices in teaching/learning methods
- Improvement of infrastructure for using ICT devices. (such as number of class room, spacious room or space etc.)

Madrasa

- Increase skilled human resource and digital devices.
- Increase capacity of teachers on basic ICT
- Encourage teachers to use ICT devices in teaching/learning methods.

6.2 USE of ICT IN FORMATIVE AND SUMMATIVE ASSESSMENTS AND ITS EFFECTIVENESS

Respondents opined that the mixed process of both teachers-centered and learners-centered assessment is good. Some portions should be evaluated by teachers; others through self-evaluation by the students. ICT supported devices can help to improve the assessment process partially. However, to ensure full-fledged flourishment or assessment of knowledge, some descriptive and explanatory questions should be kept so that students can demonstrate their creativity. Detail description on students' performance and capability should also be documented and recognized accordingly. Assessment certificates can be given after completion of the evaluation process.

Most of the respondents remarked that assessment reports, either in hard and soft copies are effective and any of the two can be used for performance appraisal. Hands-on i.e., practical assessment is good, but ICT supported assessment process seems very good and helpful and it helps to improve the assessment process and make it more effective in terms of accuracy and judgement. They also opined that assessment process should be made handy and effective and it should be like this: Teacher will give a particular topic and students will prepare questions on the topic and give answers to those questions accordingly.

6.3 THE SCOPE AND POTENTIALITY TO IMPROVE THE CAPACITY OF HIGHER SECONDARY TEACHERS FOR USING ICT DEVICES IN LEARNING

- Through regular short-term training on ICT supported teaching and learning methods.
- Provide advanced level training to those who need it.
- Provision of global standard online training system can be introduced.
- Create interest among teachers through proper incentive and motivational tips.
- Provide weekly training or send video contents on how to use the ICT devices for global standard teaching and learning methods.
- Counseling can be done to those teachers, management staff and students who are yet be familiar with ICT supported digital devices.
- Make ICT training mandatory for all teachers and relevant management staff.
- Need to conduct periodic assessment, monitoring and review of ICT supported system and its quality and skills of the teachers.
- Need weekly or monthly visit as well as resources for vocational/technical training and financial support on behalf of the local administration.
- Need strong observation and supervision of Head of Institution for ICT related consecutive training programs and monitoring by District Education officials.
- Ensure ICT facilities e.g., strong and free network connection, Computer lab/ICT lab with necessary computer set up etc. for smooth teaching.
- Need all-out administrative, technical, and financial support.
- Need enough devices for digital class taking in each class.

Government Institutions

- Arrange regular training and follow-up trainings for the teachers.
- Ensure Internal and external monitoring, assessment and evaluation for improving use of ICT in Teaching /learning.
- Ensure basic and advanced trainings for those who need it such as freshers, slow learners etc.

Non-Government Institutions

- Ensure availability of ICT devices and facilities for using them in teaching.
- Need to identify specific gaps and strategy to overcome the gaps.

Madrasa

- Need motivation for using ICT in teaching and learning.
- Ensure infrastructure facility and availability of ICT devices

6.4. RECOMMENDATIONS

6.4.1 Policy Recommendations of Higher Secondary Institution

- Develop short version of blended learning policy and share with all Teachers, School Management Committee to develop common understanding on blended learning objectives and outcomes.
- Make Implementation Strategy to introduce blended learning environment in Higher Secondary Institutions.
- Take Initiatives for working collaboration between Treacheries Training Institute and Higher Secondary Institutions at District level to exchange learning regularly and organize needs based skill development regular and follow-up training for teachers (Old and New).
- Training Institutes can declare yearly training calendar based on needs of the Teachers.
- Make Policy to provide minimum facilities at all institutional level to utilize the learning outcome of the training.
- Make Policy and Strategy for providing support for maintenance all devices.
- Introduce psycho-social support for internet/device-addict students through online class.

6.4.2 Recommendation for Practice

- Regularly organize skill development training for teachers and provide facilities to utilize the learning outcome of the training.
- Arrange follow-up training to all the teachers and specific management staff.
- Ensure regular review of the training and learning outcomes.
- Need organizational infrastructure development for using ICT devices and ensure government, non-government, and institution's own resource/support system for that.

- Establish digital lab/computer lab with necessary facilities and ensure regular their use and maintenance.
- Appoint enough and experienced lab instructors, supervisors, assistants, and human resources for maintenance of ICT supported devices.
- Increase number of trained and skilled human resource.
- Need to ensure all educational institutions to have need-based digital devices where necessary.
- Increase number of classrooms by ensuring adequate ICT facilities.
- Make provision of enough ICT devices as well as education materials, especially science materials and subject-wise CDs.
- Establish separate ICT infrastructure with separate administrative, technical and financial management staff.
- Provide opportunities of regular practice of ICT supported devices to the students and teachers.
- Ensure uninterrupted electricity and free internet/Wi-Fi connections.
- Take initiative for collective efforts of teachers and parents for raising awareness of the students on negative/harmful features of ICT devices. For example: Awareness-raising programs for all students and staff to prevent overuse or misuse of ICT devices.
- For effective monitoring, need to form committees, proper planning and implementation of the committee's recommendations along with teachers' and parents' for this purpose.
- Strengthen monitoring on using android mobile and guideline for using it in institution premises.
- Conduct continuous research to find out reasons for becoming addicted to internet/games by the students.
- Ensure adequate facilities for participating in sports/physical exercises and cultural activities by the students.
- Provide psycho-social support for internet/device-addict students.
- Families should be much more aware to prevent abuse or addiction of internet/devices by their children.
- Ensure regular interactive dialogue and coaching between capacity building training institutions and teachers through online networking.

6.4.3 Specific recommendation for Government Institutions

- Appoint enough and experienced lab instructors, supervisors, assistants, and human resources for maintenance of ICT supported devices.
- Increase number of trained and skilled human resource.
- Need to ensure all educational institutions to have need-based digital devices where necessary.

6.4.4 Specific recommendation for Non-Government Institutions

- Establish separate ICT infrastructure with separate administrative, technical and financial management staff.

6.4.5 Specific recommendation for Madrasa

- Advocacy and counseling for using ICT in learning and teaching
- Identify specific gaps and limitation in Madrassas for using ICT devices and develop strategy for overcoming those.

6.5. CONCLUSION

To sustain in this juncture of globalization, technological advancement and fourth industrial revolution, we must introduce the use of proper ICT supported devices for smooth teaching-learning methods for ensuring education quality, critical and analytical ability, comprehensive and skilled knowledge for the learners. It is almost impossible to keep pace with the developed world without the technology supported education and development. Many of the steps taken to build a digital Bangladesh by implementing vision 2020-2021, have already impacted the educational sector in a positive way. The main goal of digital Bangladesh is to digitalize different services e.g., e-learning, e-commerce, e-banking, e-education, e-book, e-voting, e-health service, e-filing, e-mutation, e-paper, etc. The Government of Bangladesh is taking continuous measures to promote the use of ICT in education system and side by side to monitor and improve the situation as per need. As a part of it, this study revealed that many achievements as well as loopholes that need to be addressed especially in the context of ICT supported teaching-learning techniques and methods at secondary education institutions in Bangladesh. It is noteworthy that some of the respondents expressed their concern as series of interventions conducted could not bring many changes in the context of effective policy implications and implementations. So, it needs to be ensured that proper actions are taken based on the findings of this research.

Findings of the study show that there is a need for enough ICT supported devices and internet facilities in the remote areas of Bangladesh. It is not possible to establish ICT based education system only by introducing multimedia classroom in an educational institution. The government should reduce prices of ICT supported education and teaching-learning devices, as it should also

ensure uninterrupted electricity supply and uninterrupted and speedy internet support services, arrangement of ICT supported skills and training for teachers and students and allocate enough budget for infrastructure development of those institutions those are relatively deprived of adequate support services, especially the remote most rural areas and difficult terrains of the country . In the meantime, the government has taken some steps and initiatives to make ICT supported education system up-to-date and introduce online supported training system. Side by side, local training centers should enhance their capacity for providing effective training to the rural teachers and management staff, allocation of adequate budget and resources for expediting ICT supported teaching-learning methods. Apart from this, cautionary steps should be taken to uphold the values of our society through avoiding negative or obscene internet contents and programming for the students. In order to do this, constant monitoring and surveillance by the teachers, management staff and parents need to be demonstrated effectively to protect students from all kind of risk, hazards and harm out of ICT supported teaching and learning methods and system.

ANNEXURE

Questionnaires (Set-1, Set-2, Set-3)

KII Checklist

FGD Guideline

Study on
Status of Higher Secondary Teachers' Capacity on using ICT for Learning
সমীক্ষা
শিক্ষায় আইসিটি ব্যবহারে উচ্চ মাধ্যমিক শিক্ষকদের সক্ষমতার চিত্র

প্রশ্ন সেট ১ - মুখোমুখি সাক্ষাৎকার **উত্তরদাতা: বিষয়ভিত্তিক শিক্ষক**

১. সাধারণ তথ্য:

ক) উপজেলার নাম: ---------- খ) জেলার নাম: ----------

গ) বিভাগ:---------- ঘ) প্রতিষ্ঠানের নাম : ----------

ঙ) সর্বমোট শিক্ষার্থী: ছেলে ---------- মেয়ে ---------- চ) সর্বমোট শিক্ষক: নারী -------- পুরুষ --------

২. বিষয়ভিত্তিক শিক্ষকের তথ্য:

ক) সাক্ষাৎকার দাতা শিক্ষকের নাম ----------

খ) লিঙ্গ: □ নারী □ পুরুষ □ অন্যান্য

গ) পদবী ----------

ঘ) শিক্ষাগত যোগ্যতা ----------

ঙ) কোন বিষয়ের শিক্ষক ----------

চ) অন্য কোনো বিষয়ে পাঠদান করেন কিনা ? □ হ্যাঁ □ না

ছ) কতোদিন ধরে এই বিষয়টি পড়াচ্ছেন?

□ ৫ বছরের কম □ ৬-১০ বছর □ ১১-১৫ বছর □ ১৬-২০ বছর □ ২০ বছরের বেশি

জ) কতোদিন ধরে এই প্রতিষ্ঠানে শিক্ষকতা করছেন?

□ ৫ বছরের কম □ ৬-১০ বছর □ ১১-১৫ বছর □ ১৬-২০ বছর □ ২০ বছরের বেশি

৩. আইসিটি ও আইসিটি ডিভাইস সংক্রান্ত তথ্য:

ক) আপনি কি শ্রেণীকক্ষে পাঠদানে কোনো আইসিটি ডিভাইস ব্যবহার করেন? □ হ্যাঁ □ না

খ) যদি উত্তর হ্যাঁ হয়, তাহলে কি ধরনের ডিভাইস ব্যবহার করেন?

(i) ডেস্কটপ এবং ল্যাপটপ □	(iv) স্মার্টফোন □	(vii) ইন্টারেক্টিভ হোয়াইট বোর্ড □
(ii) মাল্টিমিডিয়া □	(v) আইপ্যাড □	(viii) ডিভিডি এবং সিডি □
(iii) পেন ড্রাইভ □	(vi) মাইক্রোফোন □	(ix) অন্যান্য .....

গ) আপনি কী অনলাইনে পাঠদান পরিচালনা করেন? □ হ্যাঁ □ না

ঘ) যদি হ্যাঁ হয় তাহলে কি কি উদ্দেশ্যে অনলাইন ব্যবহার করেন?

(i) ক্লাস নেয়ার জন্য □

(ii) ক্লাস উপকরণ এবং লেকচার সংশ্লিষ্ট উপকরণ পাঠানো/আপলোড করার জন্য □

(iii) অনুশীলনীর গ্রেড বা ফলাফল প্রকাশের জন্য □

(iv) প্রাসঙ্গিক শিক্ষা উপকরণ বা কোনো প্রেজেন্টেশন আপলোড করার জন্য □

(v) i থেকে iv পর্যন্ত সবকটি

(vi) অন্যান্য (সুনির্দিষ্টভাবে উল্লেখ করুন) .....

ঙ) অনলাইন ক্লাসের জন্য কোন আইসিটি ডিভাইস ব্যবহার করেন?

(i) ডেস্কটপ □	(iv) ডেস্কটপ ক্যামেরা □	(vii) পেন ড্রাইভ □
(ii) ল্যাপটপ □	(v) হেডফোন □	(viii) অন্যান্য .....
(iii) স্মার্টফোন □	(vi) মাইক্রোফোন □	

চ) অনলাইনে কোন কোন মাধ্যম ব্যবহার করে পাঠদান পরিচালনা করেন?

(i) জুম-এর মাধ্যমে □

(ii) গুগল মিট এর মাধ্যমে □

(iii) ফেসবুক লাইভ □

(iv) প্রতিষ্ঠানের নিজস্ব অ্যাপস এবং ওয়েবসাইটের মাধ্যমে □

(v) অন্যান্য (উল্লেখ করুন]... ...

ছ) আপনি মহামরী Covid-১৯ চলাকালীন সময়ে অনলাইনে ক্লাস নিয়েছেন কি? □ হ্যাঁ □ না

জ) যদি হ্যাঁ হয় তাহলে কি কি বিষয়ে ক্লাস নিয়েছেন?

(i)

(ii)

(iii)

ঝ) মহামরী Covid-১৯ চলাকালীন সময়ে অনলাইনে ক্লাস পরিচালনা করতে কি ধরনের ডিভাইস ব্যবহার করেছেন?

(i) ডেস্কটপ এবং ল্যাপটপ □	(iv) স্মার্টফোন □	(vii) ইন্টারেক্টিভ হোয়াইট বোর্ড □
(ii) মাল্টিমিডিয়া □	(v) আইপ্যাড □	(viii) ডিভিডি এবং সিডি □
(iii) পেন ড্রাইভ □	(vi) মাইক্রোফোন □	(ix) অন্যান্য .....

ঞ) আপনার প্রতিষ্ঠানে কী ধরনের অবকাঠামো/ ডিভাইস রয়েছে?

ডিভাইসের নাম/সুবিধা	আছে	নাই	সংখ্যা
মাল্টিমিডিয়া			
বিদ্যুৎ			
ক্লাসরুম সাউন্ড সিস্টেম			
শ্রেণীকক্ষে ব্যবহারের জন্য কম্পিউটার/ল্যাপটপ			
প্রতিষ্ঠানের ওয়েবসাইট			
শ্রেণীকক্ষে ব্যবহারের জন্য মাইক্রোফোন			
কম্পিউটার ল্যাব			
ডিজিটাল ল্যাব			
টেকনিশিয়ান/ল্যাব সহকারী			
ইন্টারনেট সংযোগ			
কম্পিউটার এবং সিডিরম			

ট) আপনার প্রতিষ্ঠানে কয়টি শ্রেণীকক্ষ আছে?

৫-৯টি □, ১০ থেকে ১৫টি □, ১৬-২০ টি □, ২০টির বেশি □

ঠ) আপনার প্রতিষ্ঠানে কয়টি শ্রেণীকক্ষে মাল্টিমিডিয়া ব্যবহৃত হয়?

৫-৯ টি □, ১০ থেকে ১৫টি □, ১৬-২০ টি □, ২০টির বেশি □

৪. প্রশিক্ষণ সংক্রান্ত তথ্য

ক)

আইসিটি-সংশ্লিষ্ট প্রাপ্ত প্রশিক্ষণের নাম	প্রশিক্ষণের সময়কাল	কোন প্রতিষ্ঠান থেকে প্রশিক্ষণ পেয়েছেন	প্রশিক্ষণের প্রধান বিষয় সমূহ

খ) কোনো ফলো-আপ প্রশিক্ষণ পেয়েছেন কি না? □ হ্যাঁ □ না

গ) উত্তর হ্যাঁ হলে প্রশিক্ষণের নাম ----------

ঘ) ট্রেনিং-এর কতোদিন পরে ফলোআপ ট্রেনিং পেয়েছেন?

(i) ৩ মাসের মধ্যে □ (ii) ৬ মাসের মধ্যে □	(iii) ১ বছরের মধ্যে □ (iv) ২ বছরের মধ্যে □

ঙ) আইসিটি ও আইসিটি ডিভাইস ব্যবহারের উপর আপনার আরো প্রশিক্ষণের প্রয়োজন আছে কি?

□ হ্যাঁ □ না

যদি হ্যাঁ হয় তাহলে কোন বিষয়ে?

১.

২.

৫. শিক্ষার মান উন্নয়ন

ক) আইসিটি ও আইসিটি ডিভাইস ব্যবহারের ফলে শিক্ষার্থীদের গুণগত মান উন্নয়নে ভূমিকা রাখছে কিনা?

□ হ্যাঁ □ না

খ) যদি হ্যাঁ হয় তাহলে উদাহরণ

১.

২.

গ) আইসিটি ডিভাইস ব্যবহারে শিক্ষার্থীদের মনোযোগ কেমন?

□ ভালো নয় □ মোটামুটি ভালো □ ভালো □ খুব ভালো

ঘ) অনলাইন ক্লাসে শিক্ষার্থীদের মনোযোগ কেমন?

□ ভালো নয় □ মোটামুটি ভালো □ ভালো □ খুব ভালো

৬. শিক্ষার্থীদের মূল্যায়ন

ক) শেখা পাঠের মূল্যায়নের জন্য শিক্ষকরা কি কোনো ধরনের আইসিটি ডিভাইস ব্যবহার করেন?

হ্যাঁ □ না □

খ) আপনার শিক্ষা প্রতিষ্ঠানে কিভাবে শিক্ষার্থীদের মূল্যায়ন করা হয় ?

ক সাময়িক পরীক্ষা/নির্ধারিত পরীক্ষা □	ঘ. বিষয়ভিত্তিক উপস্থাপনা □	ছ. অন্যান্য হলে লিখুন:
খ. সারপ্রাইজ টেস্ট □	ঙ. প্রকল্প জমা দেয়া □	
গ. অ্যাসাইনমেন্ট □	চ. শ্রেণীকক্ষের আলোচনা □	

৭. আইসিটি শিক্ষা (ক্লাসরুম ও অনলাইন) কে যুগোপযোগী ও কার্যকর করার জন্য আরও কোন আইসিটি ডিভাইস আপনার প্রতিষ্ঠানে প্রয়োজন বলে মনে করেন?

১.

২.

৩.

৮. শিখন বা শেখানোর ক্ষেত্রে আইসিটি ডিভাইস ব্যবহারের প্রধান চ্যালেঞ্জগুলি কি কি?

১.

২.

৩.

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শিক্ষায় আইসিটি ব্যবহারে উচ্চ মাধ্যমিক শিক্ষকদের সক্ষমতার চিত্র

প্রশ্ন সেট ২ - মুখোমুখি সাক্ষাৎকার **উত্তরদাতা: তথ্যপ্রযুক্তি বিষয়ক শিক্ষক**

১. সাধারণ তথ্য:

ক) উপজেলার নাম: ---------- খ) জেলার নাম: ----------

গ) বিভাগ:---------- ঘ) প্রতিষ্ঠানের নাম : ----------

ঙ) সর্বমোট শিক্ষার্থী: ছেলে ---------- মেয়ে ---------- চ) সর্বমোট শিক্ষক: নারী --------- পুরুষ ---------

২. তথ্যপ্রযুক্তি বিষয়ক শিক্ষকের তথ্য:

ক) সাক্ষাৎকার দাতা শিক্ষকের নাম ----------

খ) লিঙ্গ: □ নারী □ পুরুষ □ অন্যান্য

গ) পদবী ----------

ঘ) শিক্ষাগত যোগ্যতা ----------

ঙ) কোন বিষয়ের শিক্ষক ----------

চ) অন্য কোনো বিষয়ে পাঠদান করেন কিনা ? □ হ্যাঁ □ না

ছ) কতোদিন ধরে এই বিষয়টি পড়াচ্ছেন?

□ ৫ বছরের কম □ ৬-১০ বছর □ ১১-১৫ বছর □ ১৬-২০ বছর □ ২০ বছরের বেশি

জ) কতোদিন ধরে এই প্রতিষ্ঠানে শিক্ষকতা করছেন?

□ ৫ বছরের কম □ ৬-১০ বছর □ ১১-১৫ বছর □ ১৬-২০ বছর □ ২০ বছরের বেশি

৩. প্রশিক্ষণ সংক্রান্ত তথ্য

ক) আপনি কি আইসিটি-সংক্রান্ত কোনো দক্ষতা বৃদ্ধিমূলক প্রশিক্ষণ নিয়েছেন? □ হ্যাঁ □ না

খ) হ্যাঁ হলে, নিম্নোক্ত তথ্য দিন:

আইসিটি-সংশ্লিষ্ট প্রাপ্ত প্রশিক্ষণের নাম	প্রশিক্ষণের সময়কাল	কোন প্রতিষ্ঠান থেকে প্রশিক্ষণ পেয়েছেন	প্রশিক্ষণের প্রধান বিষয় সমূহ

৪. ক্লাস বিষয়ক তথ্যঃ

ক) আপনার প্রতিষ্ঠানে কি নিয়মিত আইসিটি ক্লাস হয়? হ্যাঁ □ না □

খ) যদি উত্তর না হয়, তাহলে কি কারণে হয়না?

(i) দক্ষ শিক্ষকের অভাবে □

(ii) ডিভাইস বা অবকাঠামো সুবিধার অভাবে □

৫. আইসিটি ও আইসিটি ডিভাইস সংক্রান্ত তথ্যঃ

ক) আপনি কি শ্রেণীকক্ষে পাঠদানে কোনো আইসিটি ডিভাইস ব্যবহার করেন? □ হ্যাঁ □ না

খ) যদি উত্তর হ্যাঁ হয়, তাহলে কি ধরনের ডিভাইস ব্যবহার করেন?

(i) ডেস্কটপ এবং ল্যাপটপ □	(iv) স্মার্টফোন □	(vii) ইন্টারেক্টিভ হোয়াইট বোর্ড □
(ii) মাল্টিমিডিয়া □	(v) আইপ্যাড □	(viii) ডিভিডি এবং সিডি □
(iii) পেন ড্রাইভ □	(vi) মাইক্রোফোন □	(ix) অন্যান্য .....

গ) আপনি কী অনলাইনে পাঠদান পরিচালনা করেন? □ হ্যাঁ □ না

ঘ) যদি হ্যাঁ হয় তাহলে কি কি উদ্দেশ্যে অনলাইন ব্যবহার করেন?

(i) ক্লাস নেয়ার জন্য □

(ii) ক্লাস উপকরণ এবং লেকচার সংশ্লিষ্ট উপকরণ পাঠানো/আপলোড করার জন্য □

(iii) অনুশীলনীর গ্রেড বা ফলাফল প্রকাশের জন্য □

(iv) প্রাসঙ্গিক শিক্ষা উপকরণ বা কোনো প্রেজেন্টেশন আপলোড করার জন্য □

(v) i থেকে iv পর্যন্ত সবকটি

(vi) অন্যান্য (সুনির্দিষ্টভাবে উল্লেখ করুন) .....

ঙ) অনলাইন ক্লাসের জন্য কোন আইসিটি ডিভাইস ব্যবহার করেন?

(i) ডেস্কটপ □	(iv) ডেস্কটপ ক্যামেরা □	(vii) পেন ড্রাইভ □
(ii) ল্যাপটপ □	(v) হেডফোন □	(viii) অন্যান্য .....
(iii) স্মার্টফোন □	(vi) মাইক্রোফোন □	

চ) অনলাইনে কোন কোন মাধ্যম ব্যবহার করে পাঠদান পরিচালনা করেন?

(i) জুম-এর মাধ্যমে □

(ii) গুগল মিট এর মাধ্যমে □

(iii) ফেসবুক লাইভ □

(iv) প্রতিষ্ঠানের নিজস্ব অ্যাপস এবং ওয়েবসাইটের মাধ্যমে □

(v) অন্যান্য (উল্লেখ করুন]... ...

ছ) আপনি মহামরী Covid-১৯ চলাকালীন সময়ে অনলাইনে ক্লাস নিয়েছেন কি? □ হ্যাঁ □ না

জ) যদি হ্যাঁ হয় তাহলে কি কি বিষয়ে ক্লাস নিয়েছেন?

(i)

(ii)

ঝ) মহামরী Covid-১৯ চলাকালীন সময়ে অনলাইনে ক্লাস পরিচালনা করতে কি ধরনের ডিভাইস ব্যবহার করেছেন?

(i) ডেস্কটপ এবং ল্যাপটপ □	(iv) স্মার্টফোন □	(vii) ইন্টারেক্টিভ হোয়াইট বোর্ড □
(ii) মাল্টিমিডিয়া □	(v) আইপ্যাড □	(viii) ডিভিডি এবং সিডি □
(iii) পেন ড্রাইভ □	(vi) মাইক্রোফোন □	(ix) অন্যান্য .....

ঞ) আপনার প্রতিষ্ঠানে কী ধরনের অবকাঠামো/ ডিভাইস রয়েছে?

ডিভাইসের নাম/সুবিধা	আছে	নাই	সংখ্যা
মাল্টিমিডিয়া			
বিদ্যুৎ			
ক্লাসরুম সাউন্ড সিস্টেম			
শ্রেণীকক্ষে ব্যবহারের জন্য কম্পিউটার/ল্যাপটপ			
প্রতিষ্ঠানের ওয়েবসাইট			
শ্রেণীকক্ষে ব্যবহারের জন্য মাইক্রোফোন			
কম্পিউটার ল্যাব			
ডিজিটাল ল্যাব			
টেকনিশিয়ান/ল্যাব সহকারী			
ইন্টারনেট সংযোগ			
কম্পিউটার এবং সিডিরম			

ট) আপনার প্রতিষ্ঠানে কয়টি শ্রেণীকক্ষ আছে?

৫-৯টি □, ১০ থেকে ১৫টি □, ১৬-২০ টি □, ২০টির বেশি □

ঠ) আপনার প্রতিষ্ঠানে কয়টি শ্রেণীকক্ষে মাল্টিমিডিয়া ব্যবহৃত হয়?

৫-৯ টি □, ১০ থেকে ১৫টি □, ১৬-২০ টি □, ২০টির বেশি □

৬. আপনার প্রতিষ্ঠানে কি আইসিটি ক্লাস/কোর্সের জন্য আলাদা কম্পিউটার ল্যাব রয়েছে? □ হ্যাঁ □ না

৭. উত্তর হ্যাঁ হলে, শিক্ষার্থীরা কি নিয়মিত ল্যাব ব্যবহার করে? □ হ্যাঁ □ না

৮. উত্তর না হলে, কেন করে না? ----------

৯. আইসিটি ক্লাস নেয়ার ক্ষেত্রে আপনি প্রধানত যেসব সমস্যার মুখোমুখি হন?

তাত্ত্বিক	ব্যবহারিক

১০. আরও কার্যকরভাবে আইসিটি ক্লাস নেয়ার জন্য আপনার কোন ধরনের দক্ষতা বৃদ্ধি প্রয়োজন বলে মনে করেন?

তাত্ত্বিক	ব্যবহারিক

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প্রশ্ন সেট ৩ - মুখোমুখি সাক্ষাৎকার **উত্তরদাতা: অধ্যক্ষ বা উপাধ্যক্ষ**

১. সাধারণ তথ্য:

ক) উপজেলার নাম: ---------- খ) জেলার নাম: ----------

গ) বিভাগ:---------- ঘ) প্রতিষ্ঠানের নাম : ----------

ঙ) সর্বমোট শিক্ষার্থী: ছেলে ---------- মেয়ে ---------- চ) সর্বমোট শিক্ষক: নারী ---------- পুরুষ ----------

২. অধ্যক্ষ বা উপাধ্যক্ষের তথ্য:

ক) সাক্ষাৎকার দাতা অধ্যক্ষ বা উপাধ্যক্ষের নাম ----------

খ) লিঙ্গ: □ নারী □ পুরুষ □ অন্যান্য

গ) পদবী ----------

ঘ) শিক্ষাগত যোগ্যতা ----------

ঙ) আপনি কোনো বিষয়ে পাঠদান করেন কিনা ? □ হ্যাঁ □ না

চ) আপনি কতোদিন ধরে এই প্রতিষ্ঠানে শিক্ষকতা করছেন?

□ ৫ বছরের কম □ ৬-১০ বছর □ ১১-১৫ বছর □ ১৬-২০ বছর □ ২০ বছরের বেশি

ছ) আপনি কতোদিন ধরে এই প্রতিষ্ঠানে অধ্যক্ষের পদে আছেন?

□ ৫ বছরের কম □ ৬-১০ বছর □ ১১-১৫ বছর □ ১৬-২০ বছর □ ২০ বছরের বেশি

৩. প্রতিষ্ঠানের তথ্য

ক) আপনার প্রতিষ্ঠানে শ্রেণীকক্ষে পাঠদানে কোনো আইসিটি ডিভাইস ব্যবহার করা হয়? □ হ্যাঁ □ না

খ) যদি উত্তর হ্যাঁ হয়, তাহলে কি ধরনের ডিভাইস ব্যবহার করছেন?

(i) ডেস্কটপ এবং ল্যাপটপ □	(iv) স্মার্টফোন □	(vii) ইন্টারেক্টিভ হোয়াইট বোর্ড □
(ii) মাল্টিমিডিয়া □	(v) আইপ্যাড □	(viii) ডিভিডি এবং সিডি □
(iii) পেন ড্রাইভ □	(vi) মাইক্রোফোন □	(ix) অন্যান্য .....

গ) আপনার প্রতিষ্ঠানে কতোজন শিক্ষক আইসিটি প্রশিক্ষণ পেয়েছেন? [ ]

ঘ) আপনার প্রতিষ্ঠানে কয়টি শ্রেণীকক্ষ আছে?

৫-৯ টি □ ১০ থেকে ১৫টি □ ১৬-২০ টি □ ২০টির বেশি

ঙ) আপনার প্রতিষ্ঠানে কয়টি শ্রেণীকক্ষে মাল্টিমিডিয়া ব্যবহৃত হয়?

৫-৯ টি □ ১০ থেকে ১৫টি □ ১৬-২০ টি □ ২০টির বেশি □

চ) আপনি কি মনে করেন যে আপনার প্রতিষ্ঠানের বিদ্যমান অবকাঠামো বৈজ্ঞানিক শিক্ষা, শিখন এবং মূল্যায়ন পদ্ধতি চালু করা বা পরিচালনার জন্য যথেষ্ট? □ হ্যাঁ □ না

যদি না হয়, এরজন্য কী কী প্রয়োজন?

ছ) আইসিটি-নির্ভর শিক্ষা প্রদানের জন্য আপনার প্রতিষ্ঠানে কি প্রশাসনিক, কারিগরি এবং আর্থিক সহায়তা প্রয়োজন?

□ হ্যাঁ □ না

জ) মহামরী ঈড়ারফ-১৯ চলাকালীন সময়ে আপনার প্রতিষ্ঠানের শিক্ষকগন কি অনলাইনে ক্লাস নিয়েছেন? □ হ্যাঁ □ না

৪. পাঠদানের ক্ষেত্রে আইসিটি ব্যবহারে শিক্ষকদের দক্ষতা

ক) আইসিটি-নির্ভর শিক্ষার জন্য শিক্ষকের সক্ষমতা অর্জন, বৃদ্ধি এবং তা ধরে রাখার উদ্দেশ্যে কী ধরনের প্রশিক্ষণ এবং দক্ষতা প্রয়োজন?

(i)

(ii)

(iii)

খ) আপনার প্রতিষ্ঠানে আইসিটি-নির্ভর শিক্ষাপ্রদানে শিক্ষকদের দক্ষতা বৃদ্ধিতে নিজস্ব কোনো ব্যবস্থা আছে কিনা?

□ হ্যাঁ □ না

গ) থাকলে, কি ধরনের ব্যবস্থা?

ঘ) আপনি এক্ষেত্রে কিভাবে শিক্ষকদের দক্ষতা বৃদ্ধি করতে চান? □ হ্যাঁ □ না

৫. শিক্ষার মান উন্নয়নে আইসিটির ব্যবহার

ক) আপনি কি মনে করেন আইসিটি-নির্ভর শিক্ষা, শিক্ষার মান বাড়াবে? □ হ্যাঁ □ না

খ) যদি উত্তর হ্যাঁ হয়, কেন আপনি এমনটি মনে করেন?

৬. শিক্ষার মান মূল্যায়ন

ক) আপনি কিভাবে শিক্ষার্থীদের শিখনের মূল্যায়ন করবেন? শিক্ষার্থীর পারফরমেন্স মূল্যায়নের জন্য সাধারণত কোন ধরনের পদ্ধতি ব্যবহার করা হয়?

(i)

(ii)

(iii)

খ) শিক্ষার্থীর মূল্যায়নের জন্য আপনি সাধারণত আপনার শিক্ষা প্রতিষ্ঠানে ব্যবহার করেন এমন গঠনমূলক এবং সমষ্টিগত (formative and summative evaluation) মূল্যায়ন প্রক্রিয়ার কিছু উদাহরণ দিন।

(i)

(ii)

গ) শিক্ষার্থীদের পারফরম্যান্স মূল্যায়নের ক্ষেত্রে বর্তমানে আপনি কি কোনো চ্যালেঞ্জের সম্মুখীন হচ্ছেন? □ হ্যাঁ □ না

ঘ) উত্তর হ্যাঁ হলে, আইসিটি-নির্ভর শিক্ষার মাধ্যমে কি এটি কাটিয়ে ওঠা যেতে পারে? □ হ্যাঁ □ না

৭. চ্যালেঞ্জ

ক) আপনার কলেজে আইসিটি ডিভাইস ব্যবহার করার ক্ষেত্রে আপনি কি ধরনের চ্যালেঞ্জের সম্মুখীন হচ্ছেন?

(i)

(ii)

(iii)

৮. সুপারিশ

ক) কাঠামোগত উন্নয়নে

.. . .

খ. আইসিটি ব্যবহারে

.. . .

গ. শিক্ষকদের দক্ষতা বৃদ্ধিতে

.. . .

ঘ. পাঠদানে আইসিটি ব্যবহারের মাধ্যমে শিক্ষার মান উন্নয়নে

.. . .

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প্রশ্ন সেট ৪: ফোকাস গ্রুপ আলোচনা (এফজিডি) **উত্তরদাতা: শিক্ষার্থী**

শুরুর সময়: ---------- শেষ সময়:----------

মোট অংশগ্রহণকারী: ---------- পুরুষ: ---------- মহিলা:----------

এফজিডি মডারেটরের নাম:---------- স্বাক্ষর:----------

আলোচনার বিষয়সমূহ

১. আপনার প্রতিষ্ঠানে পাঠদানের ক্ষেত্রে কি আইসিটি ডিভাইস ব্যবহার করা হয়?

২. আপনাদের নিজের শ্রেণীকক্ষে কি আইসিটি ডিভাইস ব্যবহার করা হয়?

৩. আপনার শ্রেণীকক্ষে প্রধানত কোন ধরনের আইসিটি ডিভাইস ব্যবহার করা হয়?

৪. আপনার প্রতিষ্ঠানে কি নিয়মিত আইসিটি ক্লাস হয়? না হলে কেন?

৫. আইসিটি ডিভাইস ব্যবহারে কি ধরনের চ্যালেঞ্জের সম্মুখীন হচ্ছেন? এটা কিভাবে কাটিয়ে ওঠা যায়?

৬. আপনাদের শিক্ষকরা মূল্যায়নের জন্য কি আইসিটি ডিভাইস ব্যবহার করেন? করলে সেটা কিভাবে?

৭. কোন শ্রেণীতে আইসিটি প্রযুক্তি নিয়মিত ব্যবহার করা উচিত বলে মনে করেন?

৮. আপনি কি মনে করেন আইসিটি ডিভাইসের ব্যবহার শিক্ষার্থীদের আরো ভালো করে শেখার জন্য কার্যকর? হ্যাঁ বা না হলে, কেন আলোচনা করুন।

৯. আপনার মতে আইসিটি ক্লাস এবং আইসিটি ডিভাইস ব্যবহারে উন্নতির জন্য আপনার প্রতিষ্ঠানের কী কী প্রয়োজন?

১০. আপনারা অনলাইন ক্লাসে অংশগ্রহণ করেন কিনা?

১১. অনলাইন ক্লাসের ভালো দিক ও মন্দ দিক কি কি?

১২. আপনাদের কাছে কি ধরনের আইসিটি ডিভাইস রয়েছে?

১৩. মহামরী Covid-১৯ চলাকালীন সময়ে আপনারা অনলাইনে ক্লাস করেছেন কিনা?

১৪. করে থাকলে কোন কোন বিষয়ের অনলাইনে ক্লাস করেছেন?

Study on
Status of Higher Secondary Teachers' Capacity on using ICT for Learning
সমীক্ষা
শিক্ষায় আইসিটি ব্যবহারে উচ্চমাধ্যমিক শিক্ষকদের সক্ষমতার চিত্র

প্রশ্ন সেট ৫: ইন-ডেপথ সাক্ষাৎকার/কেআইআই
উত্তরদাতা: আইসিটি প্রশিক্ষক, শিক্ষা বোর্ডের প্রতিনিধি, এটুআই প্রতিনিধি, স্থানীয় বিশেষজ্ঞ, ম্যানেজিং কমিটির সদস্য, অভিভাবক

উপজেলার নামঃ ---------- জেলার নামঃ ----------

বিভাগের নাম: ---------- শিক্ষা প্রতিষ্ঠানের নাম: ----------

পদ:---------- উত্তরদাতাদের নাম (ঐচ্ছিক):----------

আলোচনার প্রশ্নসমূহ

১. আইসিটি-নির্ভর শিক্ষা ব্যবস্থা শিক্ষকদের সহজে বোঝার অংশ হিসাবে শিক্ষার বিষয়বস্তু, পাঠ্য, অডিও-ভিডিও এবং নথিগুলি তৈরিতে নমনীয়তা (flexibility) এনেছে কি না? যদি হ্যাঁ হয়, অনুগ্রহ করে কোন কোন ক্ষেত্রে এধরনের নমনীয়তা আনা হয়েছে সেগুলির বর্ণনা দিন।

২. আইসিটি-নির্ভর শিক্ষার জন্য শিক্ষকের সক্ষমতা অর্জন, বৃদ্ধি এবং তা ধরে রাখার জন্য কী ধরনের প্রশিক্ষণ এবং দক্ষতা প্রয়োজন?

৩. শিক্ষার্থীদের শেখার মূল্যায়নের জন্য কোন ধরনের মূল্যায়ন প্রক্রিয়া ভালো? আইসিটি সমর্থিত ডিভাইসগুলি কি শিক্ষার্থীদের মূল্যায়ন প্রক্রিয়া উন্নত করতে সাহায্য করে? তা না হলে কিভাবে করা যায়?

৪. শ্রেণীকক্ষে আইসিটি ডিভাইস ব্যবহারের ক্ষেত্রে শিক্ষক এবং শিক্ষার্থীরা কি ধরনের চ্যালেঞ্জের সম্মুখীন হয়? এটা কিভাবে কাটিয়ে ওঠা যায়?

৫. শিক্ষাব্যবস্থা এবং শিক্ষা প্রতিষ্ঠানে আইসিটি-নির্ভর শিক্ষা প্রদানের ক্ষেত্রে কি ধরনের প্রশাসনিক, কারিগরি এবং আর্থিক সহায়তার প্রয়োজন?

৬. শিক্ষা প্রতিষ্ঠানে বিজ্ঞান শিক্ষা, শিখন এবং মূল্যায়ন প্রক্রিয়া চালু করতে কি ধরনের অবকাঠামোগত উন্নয়ন প্রয়োজন?

৭. আইসিটি ডিভাইস ব্যবহারের উন্নয়নে কি ধরনের দক্ষতা বৃদ্ধিমূলক কর্মকাণ্ড এবং মনিটরিং প্রয়োজন?

৮. আইসিটি ডিভাইস ব্যবহারের ফলে অভিভাবকগন শিক্ষার্থীদের উপর কোন নেতিবাচক প্রভাব লক্ষ্য করছেন কিনা? এটা কিভাবে সমাধান করা যেতে পারে?

বাংলাদেশ শিক্ষাতথ্য ও পরিসংখ্যান ব্যুরো (ব্যানবেইস)
১, জহির রায়হান রোড (পলাশী-নীলক্ষেত), ঢাকা-১২০৫।
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