APRIL 2024

HIGHER SECONDARY EDUCATION PROJECT

TNA FINDINGS

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HSEP TNA FINDINGS REPORT

USAID's Higher Secondary Education Activity

Submission Date: April 21, 2024

USAID/Bangladesh Cooperative Agreement No.: 72038823CA00007

Activity Start Date: March 03, 2024
Activity End Date: April 30, 2024

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Higher Secondary Education Project (HSEP) team

Cover Design: G M Rakibul Islam, Department of Educational Administration, NSTU
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Location: Rajarhat Adarsha Mohila Degree College, Rajarhat, Kurigram, Bangladesh

Acknowledgment

The Training Need Assessment (TNA) study conducted for the Higher Secondary Education Project (HSEP) owes its success to the collaborative efforts and support of numerous individuals and organizations. We would like to express our sincere gratitude to the following individuals and organizations for their invaluable support and assistance in the completion of this research project.

The study was extensively informed and guided by knowledge and insights from Professor Dr. Shafiul Azam, Director, Planning and Development, Directorate of Secondary and Higher Education (DSHE). At the same time, a special note of appreciation is reserved for Professor Nehal Ahmed, DG, DSHE, for his invaluable suggestion to include student respondents in the sample frame, enriching the study with their perspectives.

The financial assistance extended by USAID has enabled us to conduct a comprehensive analysis of training requirements, ensuring that we can identify and address the specific training needs of the higher secondary education of Bangladesh. On behalf of the TNA study team, I also like to express our deepest gratitude to the USAID and the members of the education team for being very supportive.

I would also like to extend our sincere appreciation to the team members of Chemonics International for their unlimited technical support, guidance, and feedback throughout the entire study process. The team members' insights and feedback have been instrumental in shaping the direction and scope of this study. The team extends heartfelt gratitude to Michigan State University and Bacbon Ltd. for their support in preliminary draft tools development, finalizing data collection tools, data analysis, and reporting.

Our deepest thanks go to the participants from DSHE, National Curriculum and Textbook Board (NCTB), National Academy for Educational Management (NAEM), Higher Secondary Teachers' Training Institute (HSTTI), Regional Education Office, and Higher Secondary Colleges for their invaluable insights shared during consultation and validation workshops. The technical committee of DSHE for Higher Secondary Education Project (HSEP) deserves recognition for their insightful review, thoughtful comments, and feedback during validation and findings dissemination workshops.

I am immensely thankful for the collaborative spirit and wisdom that were offered by the members of the TNA study team, namely Dr. Happy Kumar Das, G M Rakibul Islam, and Md. Shahriar Shafiq. I would like to express my gratitude to Rubayet Mollika Rahman, Chief Executive of HRID, for giving valuable help throughout the project.

Nevertheless, this study would not have been possible without the combined efforts and support of every individual and organization listed previously. We greatly appreciate the significant contributions made by each of you to our initiative

Md. Ahsan Habib
Team Leader, TNA Study Team

ACTIVITY OVERVIEW

Activity name	USAID's Higher Secondary Education Activity
Agreement type	Cooperative agreement
Agreement Number	72038823CA00007
Activity start date	August 20, 2023
Activity end date	August 19, 2028
Name of prime implementing partner	Chemonics International Inc.
Name of sub-awardees	BacBon Limited Michigan State University
Major host-country government counterpart organization	Directorate of Secondary and Higher Education (DSHE)
Geographic coverage	Countrywide

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List of Acronyms

ACEM	Advanced Course on Education and Management
AD	Assistant Director
APA	Annual Performance Appraisal
BANBEIS	Bangladesh Bureau of Education Information System
BEDU	Bangladesh Examination Development Unit
BISE	Board of Intermediate and Secondary Education
BPSC	Bangladesh Public Service Commission
BSC	Bangladesh Civil Service
CPD	Continuous Professional Development
CQ	Comprehensive Questions
DD	Deputy Director
DEO	District Education Officer
DIA	Directorate of Inspection and Audit
DSHE	Directorate of Secondary and Higher Education
ELP	Engaged Learning Pedagogy
FGD	Focus Group Discussion
FM	Financial Management
FTC	Foundation Training Course
GESI	Gender, Equality and Social Inclusion
GPA	Grade Point Average
HSC	Higher Secondary Certificate
HSE	Higher Secondary Education
HSEA	Higher Secondary Education Activities
HSEP	Higher Secondary Education Project
HSTTI	Higher Secondary Teacher Training Institute
ICT	Information and Communication Technology
IDI	In-depth Interview
IER	Institute of Education Research
KII	Key Informant Interview
LMS	Learning Management System
MEL	Monitoring, Evaluation and Learning
MOE	Ministry of Education
MPO	Monthly Pay Order
MSU	Michigan State University
NAEM	National Academy of Educational Management
NCTB	National Curriculum and Textbook Board
NER	Net Enrollment Rate
NGO	Nongovernmental Organization
NTRCA	Nongovernment Teachers' Registration and Certification Authority
OTP	Organization-Task-Person
PLC	Professional Learning Community
TLM	Teaching Learning Materials

TNA	Training Needs Assessment
TPD	Teacher Professional Development
USAID	United States Agency for International Development
VP	Vice-Principal

Executive Summary

The Higher Secondary Education Project, a collaboration between the Government of Bangladesh and the United States Agency for International Development (USAID), aims to enhance the quality of teaching and learning in higher secondary level over five years (August 2023 - August 2028). Chemonics International Inc., with support from Michigan State University and local partner BacBon Limited, is facilitating the project's implementation.

A comprehensive training needs assessment was conducted to design effective training packages, focusing on three main objectives: understanding educators' existing knowledge, skills, and practices; identifying strengths and challenges in current educational practices; and identifying opportunities for introducing Engaged Learning Pedagogy-based training with a blended learning approach. Sample colleges from urban and rural areas were selected, with 58.5% from urban and 41.5% from rural regions. Among the 465 surveyed higher secondary level teachers, 58.1% were Lecturers, and 34.6% were Assistant Professors, with 69.4% being male.

Key Findings:

- Notably, 9.1% of educational leadership roles were held by females, highlighting a gender disparity.
- Predominant teaching methods include lecturing (36.5%), followed by board writing and talking (18.6%), with minimal student interaction.
- A significant majority of class lessons ranging from 70% to 90%, were seen to have little to no evidence of implementing any of the engaged learning pedagogical practices.
- Significant gender disparities exist in teaching practices, with female teachers demonstrating higher levels of student engagement.
- One-third of teachers (35.7%) never had a single pedagogical training in their entire teaching career.
- In last four years, only one third of the teachers (33.5%) received training and rest of the teachers (66.5%) did not receive any sort of training.
- There are differences in training rates among different types of colleges, with government colleges having a higher training rate at 45.6% compared to MPO and non-MPO colleges, where only around 20% of teachers had received training.
- More than 98% of teachers have access to digital devices (which is a smartphone in most cases) and internet services.
- Many students expressed dissatisfaction with the way teachers facilitate the teaching learning activities and communicate with them.
- Educational leaders and regional officials also agreed that teachers need training. They themselves also lack skills and capacity for monitoring, mentoring, and leading teachers and institutions to ensure enabling learning environment in higher secondary level.

Key findings on professional support and development needs:

- Training on pedagogical skills (32.9%) was identified as the most needed training content, followed by communication skills (9.9%) and classroom management (8.4%), ranked by the college teachers.
- Academic supervision, mentoring, and skills to promote enabling learning environments are ranked by the educational leader as the most needed training content.
- More than half of the teachers (59.8%) exhibited confidence in using ICT tools in teaching and learning. Most of the teachers are competent in emailing (61.8%), word processing and handling multimedia presentations (57.8%), online classes and meetings using video conferencing platforms (55%), along with using social media compared to lower awareness of learning management systems.

- A majority of teachers (95.5%) prefer training venues near their colleges.
- Identified challenges include limited teaching aids, time constraints, and managing large classes.
- Students value diverse teaching methods, real-life examples, technology integration, teacher support, and effective communication for an engaging learning experience.

Key Recommendation

Based on the analysis, the preferences and needs of higher secondary education level teachers, institute heads, education officials, and students have been portrayed in the following recommendations for training design, formulation, and delivery:

Diverse Training Modalities: Offer a variety of training modalities, including in-person, online, blended, and short-term residential options, to accommodate the diverse preferences and needs of college teachers and leaders. Additionally in-house training in college premises can be arranged to accommodate teachers' preference for training venue near to their college. It can also utilize existing physical and human resources of the college.

Tailored Content Development: Develop training content that addresses the specific needs of teachers, institute heads, and education officials, such as diversified pedagogical methods, pedagogical content knowledge, understanding curriculum directions, and academic leadership and mentoring skills.

Incorporation of gender-inclusive pedagogy in training approach. It is recommended to incorporate a gender-sensitive strategy when planning, formulating and conducting training. This includes offering online options, providing reasonable residential facilities where necessary, and scheduling sessions during convenient times. The training content may also incorporate gender and inclusive pedagogical know-how so that teachers can address the gender-sensitive and diverse educational needs of their students.

Accessible and Flexible Training Delivery: Ensure that training programs are accessible and flexible, with options for remote participation, asynchronous learning, and facilities for participants with disabilities or other special needs, to promote inclusivity and equity in accessing professional development opportunities.

Collaborative Learning Communities*:* Foster collaborative learning communities where teachers, institute heads, and education officials can engage in peer-to-peer learning, mentorship, coaching, and knowledge sharing, promoting a culture of collaboration and mutual support. Online (e.g., Teachers Portal) and in-person platforms and modalities can be used to create professional learning community for teachers.

Integration of Technology: Integrate technology into training programs to enhance accessibility, engagement, and effectiveness. This includes leveraging online platforms including learning management systems for remote learning, digital resources for content delivery, and data analytics for monitoring and evaluation purposes.

Monitoring and Evaluation Mechanisms: It is suggested to provide educational leaders with an experiential training program complemented by robust monitoring and evaluation systems to substantiate and assess the efficacy of the teacher training programs concerning educational outcomes and instruction. This may include the procedure of collecting feedback from participants, conducting subsequent assessments, and implementing required adjustments to training methodologies.

The findings underscore the importance of addressing gender disparities, enhancing teacher proficiency in ICT, and providing tailored professional development to meet educators' diverse needs. By implementing recommended training modalities and addressing identified challenges, the Higher Secondary Education Project can contribute significantly to improving teaching and learning outcomes in Bangladesh.

1. INTRODUCTION

1.1 Background of TNA

Chemonics International, with its partners BacBon Limited and Michigan State University, is implementing the Higher Secondary Education Project (HSEP) with the guidance of Bangladesh's Directorate of Secondary and Higher Education (DSHE) of the Ministry of Education and financial support of USAID in Bangladesh. The project aims to improve teachers' instructional and management skills and strengthen the leadership and supervision capacity of principals, vice-principals and education officers at higher secondary levels through need-based training. Therefore, before planning, designing, and implementing training intervention, Chemonics aims to conduct a Training Needs Assessment (TNA) to develop a training modality/package that would best suit the requirement of teachers and education leaders to empower them to be exemplary role models to scaffold learners in engaging in the active learning process at the higher secondary level.

TNA, or Training Needs Assessment involves utilizing appropriate methods of data collection (e.g. survey, interviews, observation) to identify which of the problem "requires a training solution" (Leatherman, 2007, p.3)[1]. This kind of assessment is widely used as an educational quality improvement tool to identify training gaps and outcomes of targeted continuous professional development (Markaki, et al., 2021)[2]. The primary purpose of conducting a TNA is to determine what training is required to bridge these gaps and improve individual and organizational performance. In the education sector, TNA helps ensure that educators, administrators, and staff have the necessary skills and knowledge to provide effective learning experiences. Furthermore, it facilitates prioritization and allocation of limited educational resources based on the identified training needs. TNA in the education sector is essential for ensuring that educators and staff are well-prepared to meet the evolving needs of students and the education system. It contributes to the overall effectiveness, quality, and relevance of educational programs and services. The present TNA study had a deep look at these issues and answered several crucial questions based on extensive field data collected from a range of key stakeholders on how to enhance teachers' instructional and management skills and influential leadership capacity in principals and education leaders.

There are several models and approaches for conducting Training Needs Assessment (TNA), each with its strengths and applications. Taylor and O'Driscoll (1998)[3] categorized two major theoretical models of TNA that have dominated the training literature for over three decades including the Organization-Task-Person analysis framework (`O-T-P' model) and the performance analysis approach. OTP model assesses the organization's objectives and goals, resource needs, and efficiency benchmarks to determine where training is required (McGehee & Thayer, 1961[4]). On the other hand, to identify the content of training, task analysis determines performance criteria (what activities must be completed to meet the standard, how tasks are completed, and the relevant knowledge and skills

[1]Leatherman, D. (2007). *The Training Trilogy Third Edition: Conducting Needs Assessments Designing Programs Training skills*, HRD Press, Inc

[2]Markaki, A., Malhotra, S., Billings, R. & Theus, L. (2021). *Training needs assessment: tool utilization and globalimpact*. BMC Med Educ, 21 (310). https://doi.org/10.1186/s12909-021-02748-y

[3]Taylor, P. J. & O'Driscoll, M. P. (1998). A new integrated framework for training needs analysis. Human Resource Management Journal, 8 (2). 29-50.

[4]McGehee, W. and Thayer, P.W. (1961) Training in business and industry. Wiley, New York.

needed to do those tasks) and person analysis determines who within the company needs the training (Taylor & O'Driscoll, 1998). Conversely, the performance analysis TNA model for performance concentrates on recognizing and ascertaining the reasons behind performance disparities between projected and actual outcomes (Mager & Pipe, 1984[5]; Rummler & Brache, 1995[6]). A fundamental principle is that training is only necessary if a discrepancy in performance is attributable to a lack of knowledge or skills and not to other factors influencing behavior at work (e.g., insufficient resources, feedback, rewards, or punishments) (Taylor & O'Driscoll, 1998).

Figure 1: Adapted from the Performance analysis TNA model (Taylor & O'Driscoll, 1998)

For this study, an integrated model proposed by Taylor and O'Driscoll (1998) was employed where training needs were determined at various levels of analysis including individual, Group/organization, and Inter-organizational levels. Individual level refers to seeking an understanding of the needs of individuals and managers or specialists (e.g., teachers, principals, and education officers) whereas, at the Group/organizational level, the assessment focuses on job tasks across a group or organization (role of teachers or role as college head or administrative). At the Inter-organizational level, training needs were assessed through concerned stakeholders across organizations such as related teacher training organizations and beneficiaries of the training (e.g., Higher Secondary Teacher Training Institute (HSTTI), National Academy for Educational Management (NAEM), etc.).

The ongoing transformation of the higher secondary education system in Bangladesh necessitates a keen focus on empowering educators to effectively engage in the active learning process and serve as exemplary role models for their students. This draft report provides the detailed findings/ results of the Training Needs Assessment (TNA) study to identify the specific training requirements of teachers, principals, and educational leaders across colleges in Bangladesh.

[5]Mager, R. F., & Pipe, P. (1984). Analyzing performance problems, or, you really oughtawanna (2nd Ed.). Center for Effective Performance.

[6]Rummler, G. A., & Brache, A. P. (1995). *Improving Performance: How To Manage the White Space on the Organization Chart. The Jossey-Bass Management Series*. Jossey-Bass, Inc., 350 Sansome Street, San Francisco, CA 94104.

This TNA study was broadly directed by the three objectives:

Objective 1: To understand existing knowledge, skills, and practices of professionals (teachers, principals, vice principals, regional government officials) on instructional skills and management to activate the teaching-learning processes;

Objective 2: To identify the key strengths and challenges of the current educational practices for exploring need-based upgraded instructional and management supports to the teachers and educational leaders;

Objective 3: To identify the scopes (modality of training, content, facilitation, inclusiveness, duration, access to ICT) in introducing ELP-based training addressing the blended learning approach for teachers and education leaders.

The TNA study conducted a comprehensive analysis to evaluate the three primary TNA objectives, utilizing extensive data collected from all prospective stakeholders including students, teachers, principals, vice principals, teacher trainers and educational administrators and policy makers.

2. METHODOLOGY

2.1 Methodology of the Study

The TNA agency conducted a desk review of existing training programs, curriculum and manuals, key policy documents, official documents, and relevant studies to gain a holistic understanding of the training facilities available for the teachers and education leaders in higher secondary education (HSE) of Bangladesh. Along with the desk review, the TNA study employed a convergent parallel mixed method research design as it requires both quantitative and qualitative data simultaneously to examine the situation and understand the training needs. The agency reviewed and finalized primary data collection tools comprising in-depth interviews (IDI), key informant interviews (KII), focus group discussion (FGD) guidelines, classroom-observation checklist, including teachers' survey questionnaires. Through a consultation workshop with the project team, DSHE, and other relevant stakeholders, the TNA agency divided the total area for data collection into 9 education regions and selected 45 colleges, 5 colleges from each region, ensuring a significant number of public and private, rural and urban, resourced and under-resourced, boys' and girls' colleges. Along with students, teachers, principals, and vice-principals, the representatives from DSHE i.e. Training wing, Planning and development wing, NAEM, HSTTIs, and Regional Education offices were included in the sample frame to garner an understanding of the current key barriers and strengths of teacher and leadership training delivery and outcomes in HSE. Along with the situational analysis report 2021 of USAID, relevant secondary data from the Bangladesh Bureau of Education Information System (BANBEIS); Board of Intermediate and Secondary Education (BISE); and MOE, DSHE, and NAEM. The total sample frame is explained in the following sections in detail.

2.2 Sample and Sampling Techniques

The sample for this study comprises colleges, as well as principals, vice-principals, teachers, students, teacher trainers, and education officials. To ensure a representative sample of colleges from various categories (public/private, rural/urban, resourced/under-resourced, boys'/girls' colleges) in Bangladesh, the team considered the Stratified Random Sampling method. The total population of the study was allocated among nine education zones based on the respective regional offices. Subsequently, five institutions were randomly selected from each region.

1. ***Sample selection for the survey of 45 general education colleges*:** There are a total of 2806 public and private HSE colleges in Bangladesh including the Higher Secondary Section of secondary schools, among which 95.8% are private institutions. Altogether, 53,671 teachers work in these colleges of whom 95% are in private institutions and almost 3/4th are male (72.66%). Primary data was collected from a field survey sample of 45 HSE colleges from 9 regions with an enrollment of Grades 11 and 12 students and teacher training institutions responsible for HSE teachers' pre-service and in-service training. The colleges were selected based on the regional offices as well as ensuring geographical, rural/ urban, and gender representation (see Table 1). Colleges from rural and urban areas got equal priority as 53.78% of these colleges are situated in rural areas of the country. More than 15% of colleges are girl's colleges in the country. Classroom activities of these 45 colleges were observed using an observation checklist.

Table 1: Distribution of College Samples by location and type

Zone	Govt.	MPO	Non-MPO	Total College	Girl's	Boys	Combined	Total College	Urban	Rural	Total College
Dhaka	2	3	1	6	2	1	3	6	3	3	6
Rangpur	3	2	0	5	1	0	4	5	3	2	5
Chattogram	1	2	1	4	1	0	3	4	3	1	4
Rajshahi	1	4	0	5	1	0	4	5	2	3	5
Khulna	2	3	0	5	1	0	4	5	2	3	5
Mymensingh	3	2	0	5	1	0	4	5	3	2	5
Barishal	2	3	0	5	1	0	4	5	2	3	5
Sylhet	4	1	0	5	1	0	4	5	1	4	5
Cumilla	2	3	0	5	1	0	4	5	3	2	5
Total- 09	**20**	**23**	**2**	**45**	**10**	**1**	**34**	**45**	**22**	**23**	**45**

A total of 45 HSE colleges were selected from 9 regions. Among these, 20 were public 23 were MPO and 2 were non-MPO colleges. The sample was selected considering their geographical locations across rural and urban areas (e.g., hill tracts, coastal, plain land, char land, and haor/baor [floodplain]), as shown in the following table.

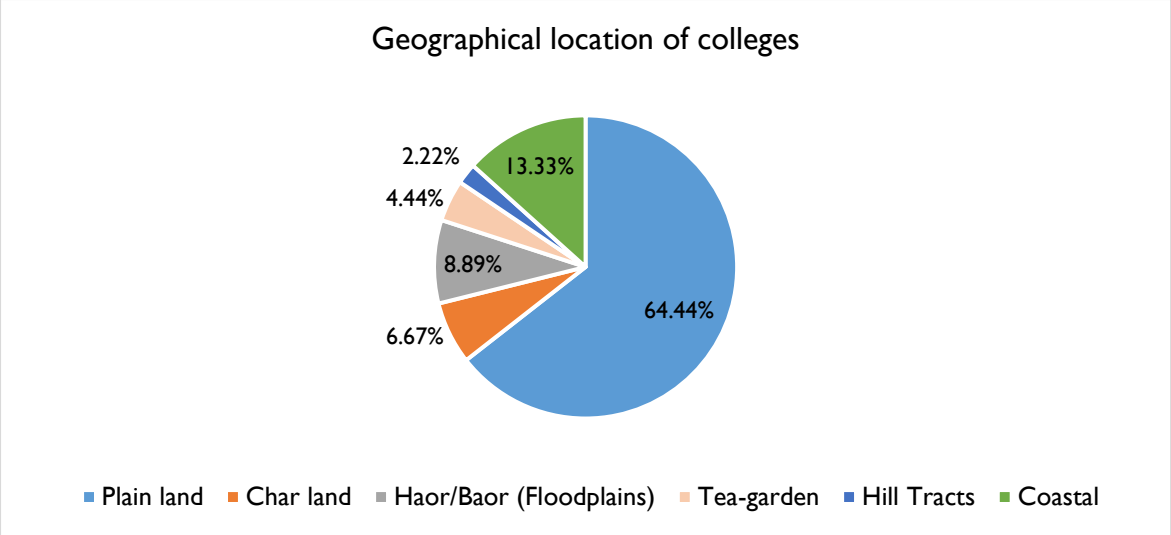

Figure 2: Geographical location of the colleges

2. **Sample Teachers:**

Altogether, 53,671 teachers work in these colleges of whom 95% are in private institutions and almost 3/4th are male (72.66%). Using the following formula, the sample size was calculated,

$$\text{Sample size} = \frac{\frac{z^2 \times p\,(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p\,(1-p)}{e^2 N}\right)}$$

Here,
N = population size
e = Margin of error (percentage in decimal form)
z = z-score
Considering a confidence level of 95% and a confidence interval of ±5, **the sample found 382 teachers of whom 278 would be male and 104 would be female teachers.** Finally, the study **reached 465 teachers** through a teacher survey. Additionally, it interviewed 131 teachers along with their class observations.

3. ***Sample selection for teacher training institutes survey:*** Five HSTTIs from five divisions (Barisal, Chattogram, Khulna, Mymensingh, and Rajshahi) were selected for the study ensuring the geographical representation of the training providers for HSE teachers' professional development. Respondents from NAEM and 8 Regional Offices were also selected for KII.

4. ***Sample Participants in Leadership Role:*** The targeted sample for In-Depth Interviews (IDI) encompassed a diverse group of educational leaders, including Higher Secondary College Principals and Vice-principals, the Director of the HSTTI, officials from the NAEM, DSHE and the Board of Intermediate and Secondary Education (BISE), as well as Regional Education Officials. This selection ensured a comprehensive exploration of leadership perspectives at various levels within the educational hierarchy. By engaging these key personals, the study aimed

to elicit nuanced insights, challenges, and potential areas for improvement in the education system, contributing to informed decision-making and policy formulation at both institutional and national levels.

Table 2: Sample list at a glance

Sl.	Type of tool	Data source	No. of Unit	Sample per Unit	Estimated Participants	Actual Participants
1	Survey	Teacher	45	10	450	465
2	Lesson Observation	Classroom	45	3	135	133
3	IDI	Teacher	45	3	135	131
4	IDI	Principal	45	1	45	45
5	IDI	Vice-principal	45	1	45	39
6	IDI	Zonal Director, DSHE	9	1	9	8
7	IDI	Zonal AD/DD, DSHE	9	1	9	7
8	IDI	Director, HSTTI	5	1	5	5
9	IDI	AD/DD, HSTTI	5	1	5	5
10	KII	National Level Experts (DSHE, NAEM, NCTB)	3	1	3	3
11	FGD	Teacher	9	3	27X (6-8)	163
12	FGD	Student	9	3	27X (6-8)	190
	Total					**1178**

Among the respondents, 190 students participated in 27 FGDs where 98 participants (51.6%) were boys and 92 were girls (48.4%). Besides, 8 participants (4.2%) were from ethnic minority group and 2 participants (1.1%) were with special needs. Among the 465 teachers, 217 teachers (46.7%) were selected from Government College, 227 teachers (48.8%) were from MPO College and 21 teachers (4.5%) were from Non-MPO College.

2.3 Data Collection Tools

All data collection tools were designed through a peer review process: tools were developed collaboratively with Michigan State University, the technical team of Chemonics International Inc., DSHE, BacBon, and the TNA agency. Then the tools were piloted in a similar setting and finalized through the consultation of relevant stakeholders. Moreover, all primary data collected during the study was disaggregated by gender, age, disability, location or remoteness, and vulnerability status. The team recruited a group of research assistants to assist with primary data collection. Data triangulation of sources and techniques was done for this study. The study team used additional external data sources to add value to the study.

However, details of the data collection process are given below.

a) Survey questionnaire for teachers and IDI questionnaire for education leaders to explore their understanding of ELP, in-service professional development, blended learning, scope, mentorship, and peer support through the Professional Learning Community.

b) In-depth interview (IDI) for the representatives from DSHE i.e. Training wing, Planning and development wing, Monitoring, and evaluation wings, NAEM, NCTB, BISE, HSTTIs, Regional Education offices to garner an understanding of the current key barriers and strengths of teacher and leadership training delivery and outcomes in Higher Secondary Education (HSE).

c) Focus group discussion with teachers to complement the class observation and survey to understand how common these experiences are. Also, FGD with students was conducted to explore how efficiently teachers are facilitating students' learning and students' preference of teaching-learning activities.

d) A classroom observation checklist was employed to ensure a significant number of public and private, rural, and urban, resourced, and under-resourced, boys' and girls' colleges to identify the current situation and challenges of teaching-learning environment and activities.

All the data collection tools were piloted after development to check their validity, reliability, and usability in the field. They were piloted in a similar setting, but the place was not included in the sample frame. Based on the piloting result the instruments were revised in consultation with MSU, Chemonics International Inc., USAID, DSHE, and BacBon officials. Tools were translated to Bangla before use and the translations were also quality-tested within the Chemonics office. These tools were finalized after discussion and guidance from all the HSE agencies to understand the programs' objectives and incorporate holistic insights there.

Respecting the respondents of the study and considering the cultural context of the country, survey, KII, IDI, FGD, and classroom observation were conducted by the expert members while experienced Research Assistants were present as note-takers/ enumerators.

2.4 Data Analysis method

The methodological approach to this assessment was designed as quantitative and qualitative in nature, thus data analysis included both quantitative and qualitative approaches. Statistical analysis included both descriptive and inferential statistics to describe the basic demographic data and data from the observation checklist. Quantitative data were analyzed using MS Excel mainly, along with the STATA 14 wherever it was needed.

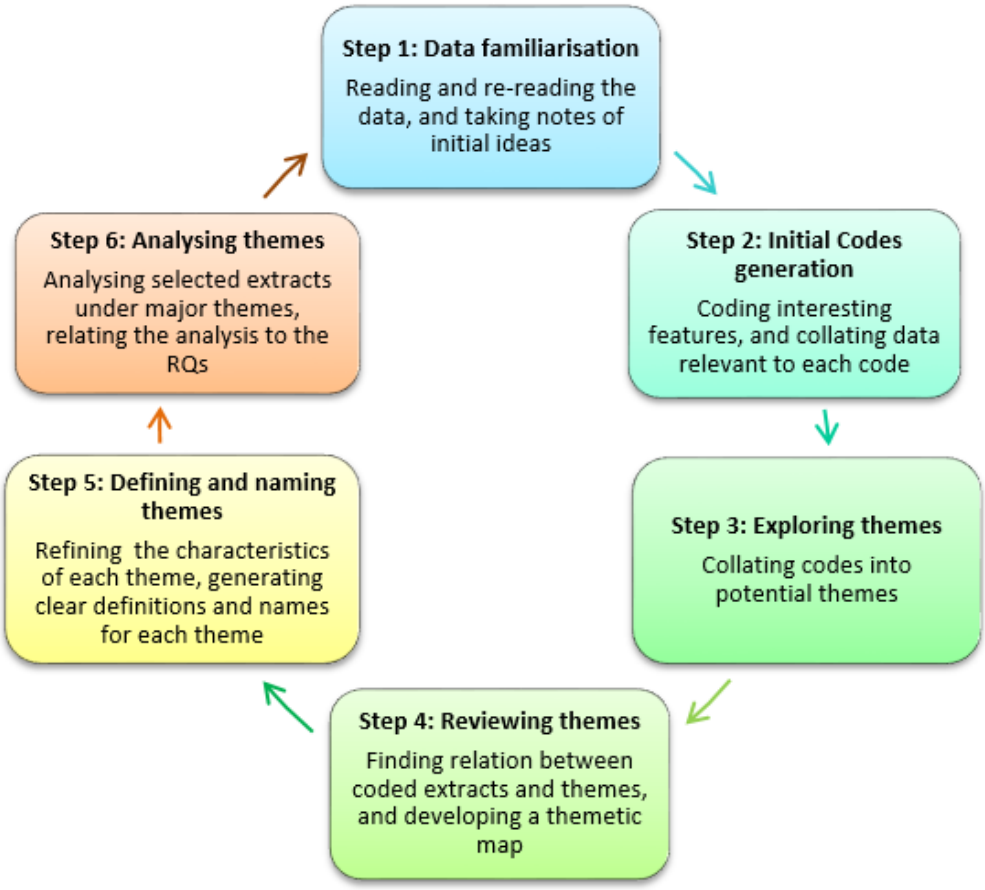

Figure 3: Data-driven thematic analysis cycle (Adapted from Braun and Clarke, 2006, p. 87)

To analyze the qualitative data collected, data-driven thematic analyses were incorporated (Braun and Clarke, 2006)[7]. Researchers used this method to organize raw data into conceptual categories, build candidate themes or concepts, and create a thematic chart (Cohen, Mannion, and Morrison, 2011[8], Braun and Clarke, 2006). Data was analyzed systematically, with quantitative findings feeding into qualitative findings to clarify reasons and explanations for quantitative findings and leading to compelling study conclusions.

2.5 Methodology Overview

The TNA agency started data collection on 18 March and completed all data collection by 21 March 2024 from all the colleges and zonal education offices. Data collection of NAEM, BEDU, and DSHE was done by the 4th of April. The TNA agency initiated the data collection process right after submitting the inception report and organized several significant events to prepare for the data collection process including tools preparation and adaptation, tools translation, sharing workshops with multi-stakeholders, recruiting data enumerators, communicating with the colleges, and so on.

[7]Braun, V. and Clarke, V. (2006). 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3(2), pp. 77–101. doi: 10.1191/1478088706qp063oa

[8]Cohen, L., Manion, L. and Morrison, K. (2011). *Research methods in education*. 7th edn. London: Routledge.

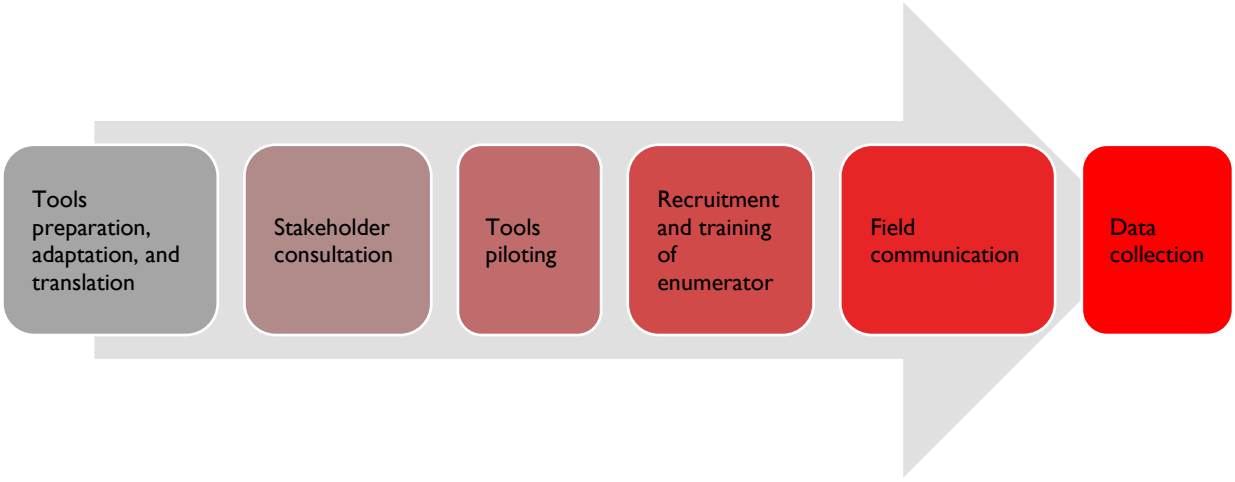

Figure 4: Preliminary Process for Data Collection

i) Tools preparation: The tools development has gone through a long and rigorous procedure. The TNA tools were co-developed by Chemonics International, Michigan State University (MSU) and BacBon. The TNA agency adopted and contextualized the tool in Bangla considering the local context yet keeping the original intended goals of the tool. The tool adaptation process continued through with two-day workshop with multi-stakeholders from the Directorate of Secondary and Higher Education (DSHE), Higher Secondary Teachers' Training Institute (HSTTI), College principals, teachers, National Curriculum and Textbook Board (NCTB), Bangladesh Exam Development Unit (BEDU). Apart from the stakeholders mentioned, relevant professionals from Chemonics International (e.g. Chief of Party, Deputy Chief of Party, Senior Technical Director, MEL Director, Blended Learning Advisor, GESI Advisor and other relevant technical team members), professionals from Michigan State University, BacBon also participated in the tool adaption and finalization workshop.

ii) Tools piloting – After the multi-stakeholder workshop, all tools were edited following the suggestion and feedback from the workshop, a tools piloting activities were initiated. Government Science College, Tejgaon, Dhaka, which was not in the TNA data collection sample list, was selected for piloting the tools. A team was assigned to conduct piloting in the college's premises. After the piloting, several changes were made to the tools including several language editing and question numbering in the TNA tools.

iii) Recruiting teacher education experts and education graduates for field data collection: To acquire high-quality data, the data collection team was composed of individuals with expertise in the subject of education. A total of 14 teams were formed, each led by an education professional, such as a university faculty member from the education department or a secondary school teacher trainer. All team members are either graduates or currently in their final year of education. This recruitment facilitated the rapid mastery of the instruments by the data enumerator and achieved the targeted objectives of the study.

iv) Enumerator training: A Day-long workshop organized with the data enumerators and team leaders. Along with the TNA agency, a Deputy Director and a Research Officer from DSHE, and Senior Technical Director, MEL Directors, technical members from other relevant units, GESI Advisor of Chemonics International along with Professional Development Manager of Michigan State University (MSU), Dhaka attended the enumerator training. Project Management Specialist from USAID also attended in the enumerator training and provided their advice and insights regarding the data collection to the team leaders and enumerators.

As we considered date enumerator training is an extremely important part of the primary data collection, we provided data enumerators and team-leaders a pre-planned training experience through-out the day. The TNA team organized team leaders and data enumerators to sit by the group so that they could know with other and plan their field activities together. The training was divided into four sessions. During the first section, TNA team leader presented the study objective, methodology and procedure so that all field team members internalized the study purpose and data collection procedure. In the second session, the TNA agency team members discussed each of the tools to make sure that enumerators are familiar with all the tools. Thirdly, the field team leaders and data enumerator were provided with copies of all the tools. And all 14 data collection team practiced the tools by themselves in groups. In the last session, logistic support and field planning were a discussed and directed by the TNA agency.

v) Establishing communication with the field: The TNA agency sought a letter from the DSHE to get formal authorization to access the colleges and Zonal education offices. It is much appreciated that the Directorate General and DHSE concern officials promptly approved the letter despite it being the last business day of the week and distributed it to all Zonal offices, HSTTI, and study colleges. In addition, a letter was delivered to the TNA agency, which was subsequently forwarded to the data collection team members. Furthermore, members of the TNA study contact each college, zonal office, and HSTTI head individually to schedule an appointment before data collection. Due to the lengthy prayer in the evening and the short office hours during Ramadan, the TNA team was initially unable to contact a few of the colleges. However, with the assistance of regional offices and need based communication by HSEP regional team, all colleges, zonal offices, and HSTTI were eventually contacted before the team arrived at their respective offices or colleges. This process was quite helpful as colleges got to welcome the study team with adequate time and support.

vi) Data collection process in the field: As per planned, all 14 teams moved simultaneously to 9 education zones and 5 HSTTIs. The data collection process commenced with a visit by the team leader to the director of the zonal office responsible for secondary and higher secondary education and they facilitated the IDIs with directors and assistant directors.

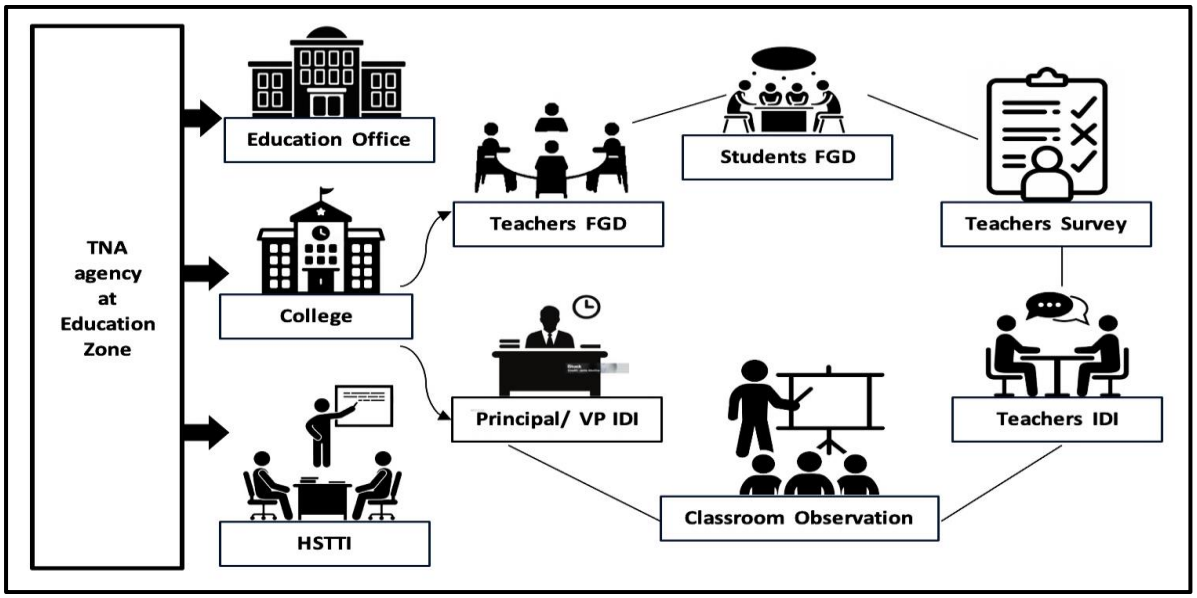

Figure 5: Sample, Data Collection Tools, and Techniques

A delegate or assistant director was appointed by the director to the team with the responsibility of coordinating the data collection activities in colleges (this procedure is recommended and authorized by the DSHE). An in-depth interview (IDI) was conducted by the supervisor of the data collection

team with the director and assistant director of the zonal education office. Nonetheless, in certain instances the IDI was carried out following college visits, taking into account the situation and the directors' convenience.

With the assistance of the designated assistant director, the TNA team visited each college to conduct the following: KIIs with the principal and vice principals, IDIs with three teachers after class observations, FGDs with both teachers and students and lastly survey questionnaires with teachers. It should be noted that colleges leading up to the higher secondary level do not have vice principal positions, and in certain colleges, the vice principal position was either vacated or unoccupied (due to Hazz leave).

In all these instances, a senior teacher was promptly chosen to conduct the interview. Due to ongoing testing for grade 12 and mid-year exams for grade 11, classes were found suspended temporarily in several situations, preventing the TNA team from observing classes at these colleges.

Finally, data were collected from a total of 45 HSE colleges from 9 education regions. Among these, 14 were public, 29 were MPO and 2 were Non-MPO colleges. The sample was selected considering their geographical locations across rural and urban areas (e.g., hill tracts, coastal, plain land, char land, and haor/baor [floodplain]).

It is to be noted that relevant professionals from Chemonics international (Senior Technical Director, MEL Director, Blended Learning Advisor, GESI Advisor along with other relevant technical members), Michigan State University professionals and professionals from BacBon engaged with different data collection teams across the country. Regional staffs of Chemonics International monitored the data collection activities and provided need-based support when required. Director, Deputy Director, Project Management Specialist from USAID also participated in the data collection phases.

3. FINDINGS

The chapter outlines the results of the TNA study, organized according to its three primary objectives. Initially, institutional information and participant demographics are presented, followed by the key findings of the study. Quantitative data is utilized to present each TNA objective, followed by qualitative evidence to supplement and enrich the findings.

3.1 Demographic Information

3.1.1 Institutional Information

Sample colleges for data collection were selected from both urban and rural areas of Bangladesh following the guidelines of DSHE. 58.5% of the colleges were from urban and 41.5% colleges were selected from rural areas of the country.

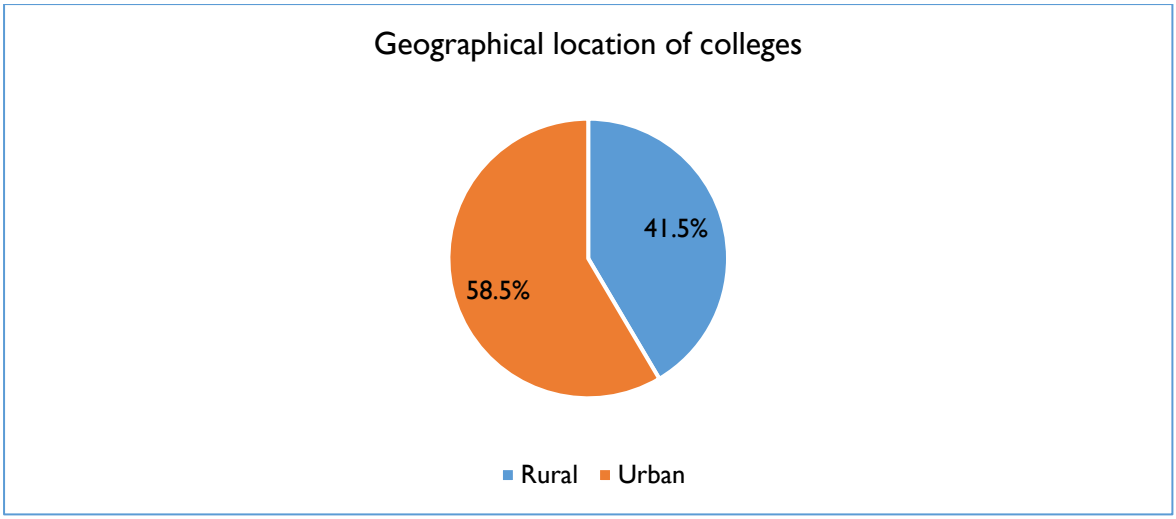

Figure 6: Geographical location of the sample colleges

3.2 Demographics of participated college teachers, educational leaders, and officials

Types of Teachers by profession: As shown above, data gathered for teacher surveyed in both urban and rural college where urban and rural proportion was 41.5% and 58.5% respectively. Out of the 465 teachers surveyed at the higher secondary level, most of them (58.1%) were Lecturer and 34.6% were Assistant Professors, whereas 5.4% were Associate Professors and 1.9% were Professors. Thus, the largest portion of teachers in the sample was in their early career, who are expected to carry the learned knowledge from training for longer period than the senior teachers. Interestingly, when we look at the findings regarding teaching experience of the teachers, we see that most of the teacher-respondents have more than 10 years of experience. These findings depict the harsh reality in HSE sector. Teachers do not get promoted both in government and non-government colleges easily. In most cases it takes an era to get the first promotion for a teacher, which is longer for the teachers working in non-government colleges. However, this data illustrates that the majority of teachers possess considerable experience in teaching.

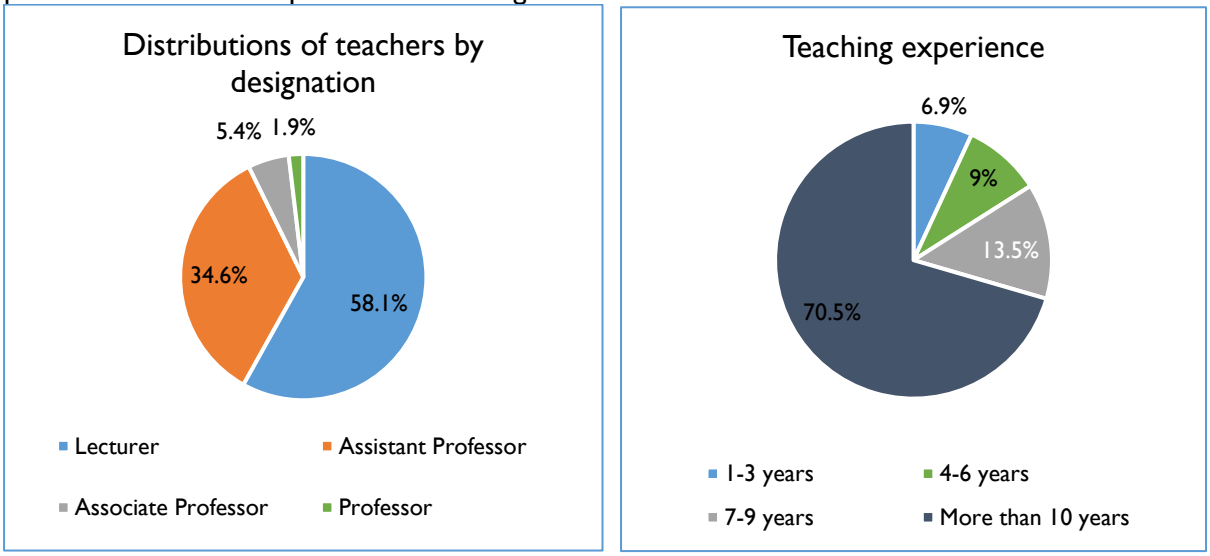

Figure 7: Distribution of designation and experience of teachers

Types of teachers by gender: Among the teacher-respondents, 69.4% teachers are male, while 30.6% are female. This indicates that the number of male respondents surpasses twice the number of female respondents, which is similar to national ratio of male-female teachers at HSE level.

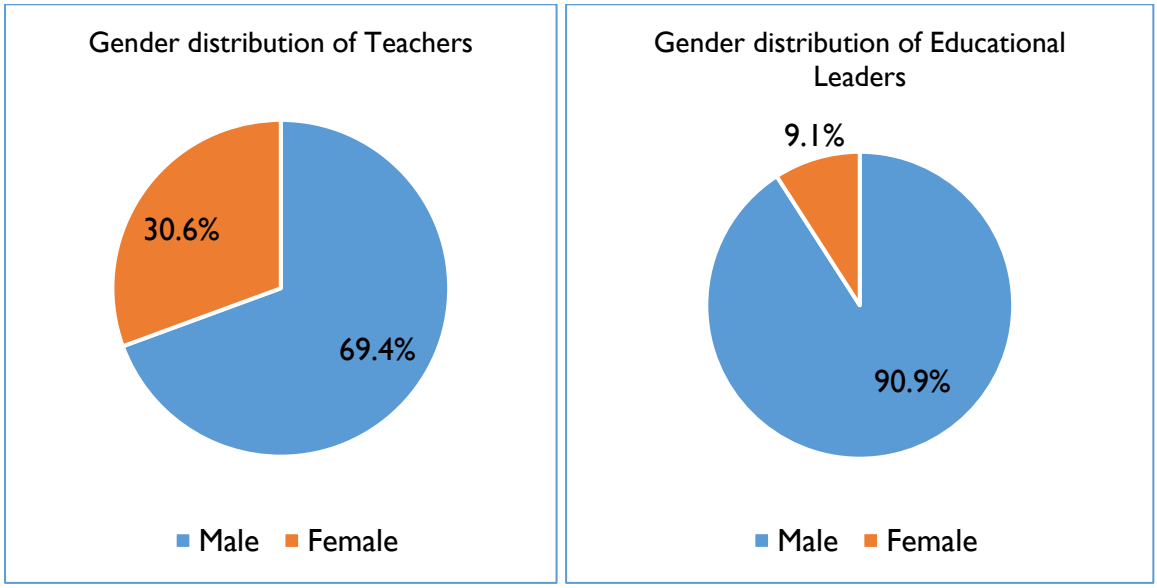

Figure 8: Gender distribution of teachers and education officials

Gender distribution of educational leaders:
The gender distribution among principals, vice-principals, directors, and deputy directors of HSTTI and regional education offices reveals a significant disparity, with males comprising 90.9% of the total, while females represent only 9.1%. This imbalance underscores the need for initiatives to promote gender diversity and equity in educational leadership roles within these institutions.

Teachers by types of college: The primary workplaces of the teachers fall into three categories: Government institutions, institutions under the MPO scheme, and institutions not under the MPO scheme. Among these institutions, 46.7% colleges are government, 48.8% are MPO colleges and 4.5% are non-MPO colleges.

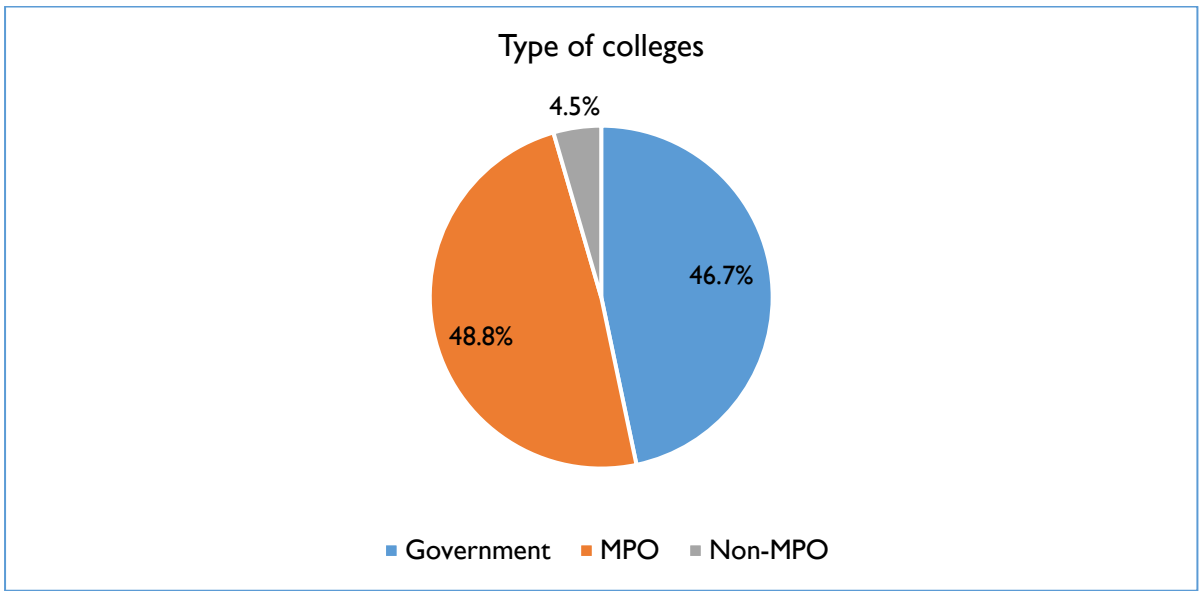

Figure 9: Types of college

Teachers by distance from residence: The approximate distance from the residence of the teachers to their workplace varies. Among the respondents, 85 (18.3%) teachers have to travel less than 1 km, 158 (34%) teachers have a distance of 1-5 km, 77 (16.6%) teachers have a distance of 6-10 km, 71 (15.3%) teachers have a distance of 11-20 km, and 74 (15.9%) teachers have to travel more than 20 km to arrive at their workplace.

Table 3: Distance of teachers' residence from college

Distance (in km, approximately) from workplace to residence	Percentage (n=465)
Less than 1 KM	18.3
1-5 KM	34.0
6-10 KM	16.6
11-20 KM	15.3
More than 20 KM	15.9

Among the respondents, 15.5% teachers spend less than 10 minutes commuting to their workplace from their residence, 48% teachers spend 10-30 minutes, 22.6% teachers spend 30-60 minutes, and 14% teachers spend more than 60 minutes commuting.

Table 4: Time to commute to college

Time to commute to the workplace from residence (in minutes, approximately)	Percentage (n=465)
Less than 10 Minutes	15.5
10-30 Minutes	48.0
30-60 Minutes	22.6
More than 60 Minutes	14.0

3.3 Existing knowledge, skills, and practices of professionals on instructional skills and management

3.3.1 Perceived knowledge, skills, and practices of regional government officials

Under the DSHE, there are 9 zonal educational offices (Rangpur, Barisal, Chattogram, Cumilla, Dhaka, Khulna, Mymensingh, Rajshahi and Sylhet) across Bangladesh to oversee the HSE system. Each of the zonal offices is led by a director, deputy director and an assistant director, with each zone covering a substantial geographic area. However, government officials within these zones have expressed concerns regarding their limited expertise in educational instruction and management, particularly in effectively monitoring and mentoring teachers and principals to optimize the teaching-learning process. Despite initial pedagogy training provided at the onset of their careers, few officials have received further training in teaching and learning methodologies. Additionally, resources for digital training and monitoring, such as digital training monitoring systems, are lacking, impeding the officials' ability to effectively oversee the numerous teachers under their jurisdiction. Moreover, at the district and Upazilla levels, monitoring higher secondary education places additional strain on the already limited resources and manpower available at the zonal level.

A director from a regional office shared an incident-

> "*I recently visited a college in Nilphamari, which has no students in its science department, although they have 12 teachers for science section. The reason behind this is lack of responsibility of the teachers. Some teachers do not want to teach if the number of students is low in the class.*

This breeds disinterest among students which ultimately results in poor results. At that point, no one in the local vicinity wanted to enroll in that due to their poor grades (RD1)."

3.2.2 Perceived knowledge, skills, and practices of professional principals and vice principals

Most of the principals and vice principals particularly reported having no or limited leadership training in educational leadership or instructional practice. However, the major training content of Principals and vice-principals was found limited to financial and administrative management issues.

Government principals/VP: From a college principal remark, the Principal and vice-principal had no professional coordination training in their career. They often face difficulties coordinating teachers and students. Many times, they try some different techniques to take students back to the classroom, they may gain success for a short time but there is no longer any benefit.

A vice-principal from a govt. collage received training on creative teaching methods and after coming back he gave training to other teachers. This knowledge sharing practice and leadership practice teaches their teachers developing teaching skills. He also got training from NAEM on Advanced Course on Education and Management (ACEM). Administrative knowledge, pedagogical and ICT knowledge was included in that training but no reflection on teaching –learning technique.

Non-government/MPO principals/VP: Principal and vice-principal have less professional training. They tried to monitor classes regularly but not in a professional way, as they have limited professional training. Due to lack of all kinds of authority they cannot recruit a particular subject teacher even if they feel the urge for it. This also led to insufficient students. Teachers are less interested in attending classes; this issue creates mismanagement within college premises. Principal and vice-principal had no managerial training which helps them to manage the whole college in a systematic way. Also lack of administrative knowledge creates challenges for us to monitor classes and teachers' activities.

3.3.3 Perceived existing knowledge, skills, and practices of teachers

Teacher knowledge, skills and survey were examined through three major instruments, self-reported survey, IDI and direct class observation (Class observation rubrics and class observation checklist). Classroom observation reveals that most of the class is lecture-based, with minimal student interaction. Many of the lessons turned out to be unprepared and lacking in the use of real-life experiences or teaching aids.

Our classroom observation data reveals that teachers predominantly engage in lecturing, which occupies 36.5% of their instructional time, followed by activities such as asking questions (19.7%), talking and writing on boards (18.6%), giving instructions (7.5%), and reading from textbooks (5.2%). Hands-on activities, like showing models or experiments, and assessing assignments each account for 1.5% of teacher time. Feedback provision occurs for the entire class (1.2%) or specific students/groups (0.4%). Classroom management tasks and student engagement efforts, including transitioning activities and seatwork assignments, are allocated minimal time. Conversely, students primarily spend their time listening to teachers (49.4%), answering teachers' questions (18.6%) and copying notes (8.9%), indicating a teacher-centric learning environment. Despite some participation in responding to questions (18.6%) and reading/writing activities (11%), student-to-student interaction remains limited, highlighting the need for more collaborative and experiential learning opportunities to enhance engagement and critical thinking.

Table 5: Teaching-learning activities observed in colleges

Teachers' Activity	Time (%)	Students' Activity	Time (%)
Lecturing	36.5	Listening to teacher	49.4
Talking and writing on black/white/smart board	18.6	Answering questions (orally or in writing)	18.6

Question follows up on student statement	7.8	Copying from teacher's notes or textbook	8.9
Giving instructions what students are to do	7.5	Writing /drawing	6.6
Reading from the textbook	5.2	Non-learning (e.g. side talking)	6.2
Asking question: open or closed	3.8	Reading/viewing	4
Questioning to the class	3.4	Others	1.2
Asking question: L or H	2.4	Questioning teacher (procedural)	1.1
Questioning to a particular student	2.3	Discussing in pair or a group	0.9
Answering students' questions	2	Questioning teacher (substantive)	0.8
Listening to students' answer	1.6	Writing on black/white/smart board (individual)	0.7
Checking students' tasks	1.5	Undertaking experiment	0.5
Demonstrating an experiment model or chart	1.5	Questioning other students	0.3
Assigning seatwork	1.4	Presenting group work	0.3
Giving quiz or exam	1.3	Demonstrating model or chart (individual)	0.2
Giving feedback to whole class	1.2	Peer checking	0.2
Transitioning to other activity	0.9		
Conducting group work	0.5		
Giving feedback to individual/ small group	0.4		
Dealing with disciplinary Issue	0.1		

Along with lesson observation, to assess the overall existing teaching-learning practices, rubrics were prepared to understand the four major classroom practice including whether teachers involves interactive and analytic thinking, connecting real-live experiences to their lesson topic, fostering students ideas and leadership role and engaging students in self and peer learning. Each of the theme were assessed with 4 levels. The following chart shows in percentage to what extent the practice were evident in the observed classes.

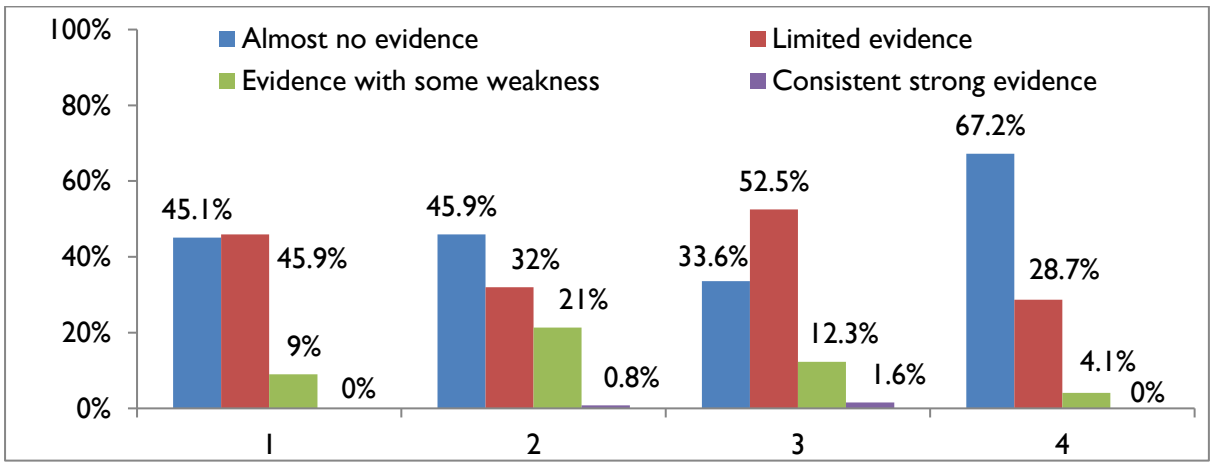

Figure 10: Class Observation rubrics by percentage

1- Interactive classroom activities with analytical thinking
2- Associate classroom activities with real life experiences
3- Foster ideas and leadership through student interaction
4- Engage students in self and peer assessment

The chart indicates that only 9% to 12% classes were found with some evidence of the four engaged learning pedagogical practices (interactive and analytic thinking, connecting real-live experiences,

fostering ideas and leadership, self, and peer learning). A significant majority of class lessons ranging from 70% to 90%, were seen to have little to no evidence of implementing any of these practices. The aspects of interactive lessons, critical thinking promotion, and participatory assessment were found to be the least practiced in higher secondary classrooms.

Teacher's class performance by gender- The data shows that female teachers demonstrated slightly higher performance than their male colleagues in connecting real-life experiences (29.27%) and peer and self-assessment (9.76%) in their classroom practice. On the other hand, male teachers were found comparatively better in fostering critical thinking (11.11%, compared to female teacher 4.88%), idea generation and enhancing leadership (13.58%+1.23%, compared to female 9.76%+2.44%) among their students through classroom experiences.

Table 6: Teachers' classroom activities

Level of competency	Interactive classroom activities with analytical thinking		Associate classroom activities with real life experiences		Foster ideas and leadership through student interaction		Engage students in self and peer assessment	
Gender	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
Almost no evidence	45.68	43.90	49.38	39.02	35.80	29.27	67.90	63.41
Limited Evidence	43.21	51.22	32.10	31.71	49.38	58.54	29.63	26.83
Evidence with some weakness	11.11	4.88	17.28	29.27	13.58	9.76	1.23	9.76
Consistent strong Evidence	0	0	1.23	0	1.23	2.44	0	0

This data underscores the importance of addressing gender disparities in teaching practices to promote more effective and inclusive learning environments in higher secondary education.

Teacher's class performance by institute types - Unlike gender, teachers' competencies of classroom performance widely varied by types of institutes as well types of aspects of competencies.

Table 7: Teachers' classroom activities by institution type

Level of competency	Interactive classroom activities with analytical thinking			Associate classroom activities with real life experiences			Foster ideas and leadership through student interaction			Engage students in self and peer assessment		
College Type	Govt. (%)	MPO (%)	Non-MPO (%)	Govt. (%)	MPO (%)	Non-MPO (%)	Govt. (%)	MPO (%)	Non-MPO (%)	Govt. (%)	MPO) (%)	Non-MPO (%)
Almost no evidence	42.86	47.69	37.50	42.86	47.69	50.00	38.78	29.23	37.50	61.22	70.77	75.00
Limited Evidence	46.94	44.62	50	32.65	33.85	12.50	46.94	60	25.00	36.73	24.62	12.50
Evidence with some weakness	12.24	7.69	12.50	24.49	16.92	37.50	14.29	9.23	25.00	2.04	4.62	12.50
Consistent strong Evidence	0	0	0	0	1.54	0	0	1.54	12.50	0	0	0

The findings reveal disparities in teaching practices across government, MPO-affiliated, and non-MPO-affiliated colleges in Bangladesh. Analysis indicates that a significant portion of teachers across all categories assign tasks with negligible evidence of fostering analytical and inferential thinking skills in students, with percentages ranging from 37.50% to 50%. Moreover, a considerable number of teachers predominantly rely on traditional teaching methods, with minimal incorporation of students' experiential insights into classroom activities, with percentages ranging from 42.86% to 50%. While some effort is made to encourage student engagement, particularly through interactive discussions, the overall consistency in implementing such practices remains low, with percentages ranging from 9.23% to 60%. Additionally, articulating assessment criteria and fostering self-assessment skills among students are areas where improvement is needed across all institutions, with percentages ranging from 12.5% to 75%. Overall, there is a clear need for enhancing teaching practices to promote interactive learning, real-life application, student engagement, and self-assessment in higher secondary education in Bangladesh.

Existing knowledge of Technology:

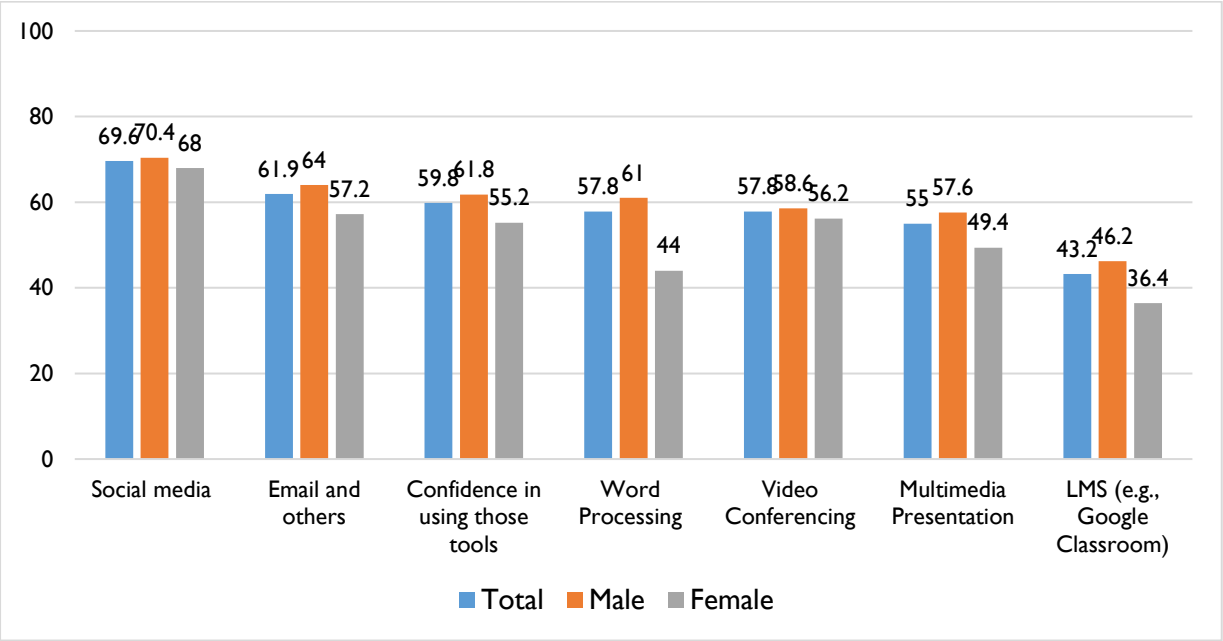

Figure 11: Teachers' digital literacy skills

Data shows that teachers are quite competent in digital literacy. Among different skills, teachers are found most competent in social media (69.6%) use and least competent in learning management systems (43.2%). In every aspect, male teachers outperformed female teachers.

Table 8: Teachers digital proficiency by sex

Types of digital proficiency	Sex of the respondents						Have no skill (%)
	Male (n=321)		Female (n=141)		Total (N=462)		
	Mean	SD	Mean	SD	Mean	SD	
Word Processing i.e. MS Word, Google Doc etc.	3.05	1.71	2.52	1.65	2.89	1.70	3.2

Multimedia Presentation i.e. MS PowerPoint, Google Slides etc.	2.88	1.65	2.47	1.57	2.75	1.63	4.3
Email and others	3.20	1.65	2.86	1.61	3.09	1.64	3.5
Social media	3.52	154	3.40	1.64	3.48	1.57	3.2
Video Conferencing (Zoom, google Meet, teams.)	2.93	1.63	2.81	1.64	2.89	1.63	4.8
Learning Management Systems (Google Classroom, MuktoPaath, etc.)	2.31	1.54	1.82	1.34	2.16	1.50	6.7
Confidence in using those tools in teaching-learning activities	3.09	1.59	2.76	1.56	2.99	1.59	3.7

Based on the response, the frequency of using Information and Communication Technology (ICT) devices and platforms for professional development activities varies among teachers. The majority, comprising 48.8% (n=227) of respondents, reported using ICT devices and platforms on a daily basis for 1-2 hours. Additionally, 11.6% (n=54) indicated using them Weekly for the same duration. A significant portion, 32.7% (n=152), reported using ICT devices and platforms occasionally for professional development activities. However, a small percentage, 6.2% (n=29), stated that they Never use ICT devices and platforms for such activities. These findings suggest that while a substantial portion of teachers engage with ICT devices and platforms for professional development activities regularly, there are still some who either use them less frequently or not at all, potentially impacting their access to digital resources and participation in online learning opportunities.

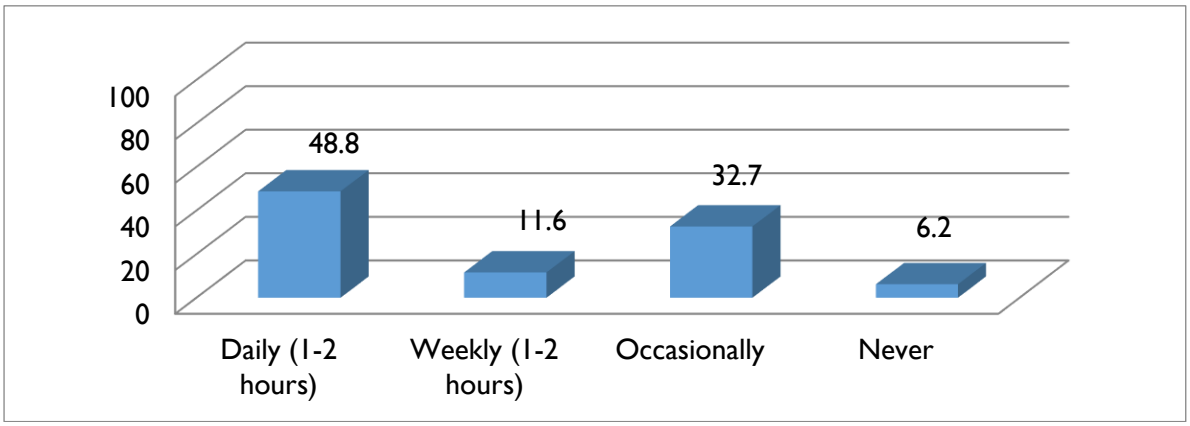

Figure 12: Teachers' use of ICT

Teachers mentioned that they lack sufficient technical expertise to effectively manage activities in ICT classrooms. Many teachers also lack the necessary skills to operate computers or laptops for teaching purposes, making it challenging for them to practice or create digital teaching materials. However, those who have received training can conduct classes more effectively than those who haven't. It's crucial to adjust training programs to align with changes in the curriculum and include modern technological knowledge.

Most of the teachers have not got any ICT related training. But it's very important for teachers. A teacher who received training said that-

> "*ICT training was relevant. It helped us to make newer multimedia contents & Procurement training which I got at 2019 that was also useful. ICT training was fruitful and I personally think that I developed myself through that.* RRGCTID11

Another teacher said that-

> *"I aim to learn more about ICT and use more software related to my subject, biology. I want to enhance my knowledge in this area further."* RRGCTIDI2

3.4 Key strengths and challenges of the current educational practices

3.4.1 Key strength perceived by the Teachers

Higher secondary level college teachers in Bangladesh demonstrate strengths in several key areas. Firstly, they possess high academic qualifications upon recruitment, reflecting a strong foundation of knowledge and expertise in their respective fields. This ensures that students receive quality instruction and guidance tailored to their academic needs. Additionally, teachers foster positive teacher-student relationships characterized by mutual respect, support, and encouragement, creating a conducive learning environment. This enhances student engagement, motivation, and overall academic performance. Furthermore, teachers exhibit enthusiasm for further learning and professional development, demonstrating a commitment to continuously enhance their teaching skills and stay abreast of current educational trends and methodologies. This proactive approach contributes to ongoing pedagogical innovation and improvement, ultimately benefiting student learning outcomes and the overall educational experience.

Teacher Competency and Commitment

Subject Specialization: Teachers are recruited based on their subject specialization, ensuring competency in content knowledge.

Interest in New Teaching Techniques: Teachers show enthusiasm for adopting new teaching techniques, indicating a commitment to professional growth.

Access to ICT Devices: More than 98% of teachers have access to ICT devices and the internet, facilitating self-learning and innovative teaching methods.

Teacher-Student Engagement and Support

Communication with Parents and Students: Teachers establish effective communication with parents and students to reduce absenteeism and improve academic results.

Group Monitoring: Assigned teachers monitor groups of students, reporting absences to college authorities and parents, fostering accountability and support.

Resilience in Overcoming Challenges: Despite various challenges, teachers demonstrate resilience and adaptability in managing classrooms and delivering quality education.

Competence in Classroom Management: Many teachers exhibit competence in managing large classrooms effectively, despite infrastructural limitations.

Resourcefulness

Creativity in Education Delivery: Teachers demonstrate creativity in delivering quality education despite limited resources, emphasizing the importance of making the best use of available resources.

In summary, teachers' competency, commitment, and adaptability are key strengths, along with their efforts to engage students and support their academic progress through effective communication and monitoring. Despite challenges, teachers exhibit resilience and resourcefulness, ensuring the delivery of quality education.

3.4.2 Key challenges perceived by the teachers

College teachers at the higher secondary level in Bangladesh encounter persistent challenges that hinder effective teaching and learning. Firstly, they struggle with limited knowledge and skills in utilizing available resources as assistive instructional materials, hindering their ability to create engaging and interactive learning experiences. Secondly, implementing motivational techniques to reduce students' absenteeism poses a challenge, impacting student attendance and engagement. Lastly, teachers face difficulties in adapting teaching methods for no-tech and low-tech classroom settings, limiting their ability to deliver content effectively in resource-constrained environments. Addressing these challenges requires targeted professional development and support to empower teachers with the necessary skills and strategies to overcome these obstacles and enhance student learning outcomes.

Despite teachers possessing a long teaching experience and high education degree in respective subject. One-third of teachers (35.7%) never had a single pedagogical training in their entire teaching career.

Table 9: Total number of training a teacher received in entire career

Total number of trainings teachers received in the whole career	Percentage (n=465)
No training	35.7
1 Training	21.9
2 training	14.6
3 training	12.7
4 or more than 4 training	14.6

Among the surveyed teachers, 156 individuals (33.5%) reported receiving training within the past four years, while the majority, consisting of 309 teachers (66.5%), stated that they had not participated in any training during the same period. Interestingly, a notable gender disparity was observed, with 61.1% of male teachers and 78.7% of female teachers reporting no participation in training within the specified timeframe. This suggests a gender imbalance, with twice as many male teachers receiving training compared to female teachers.

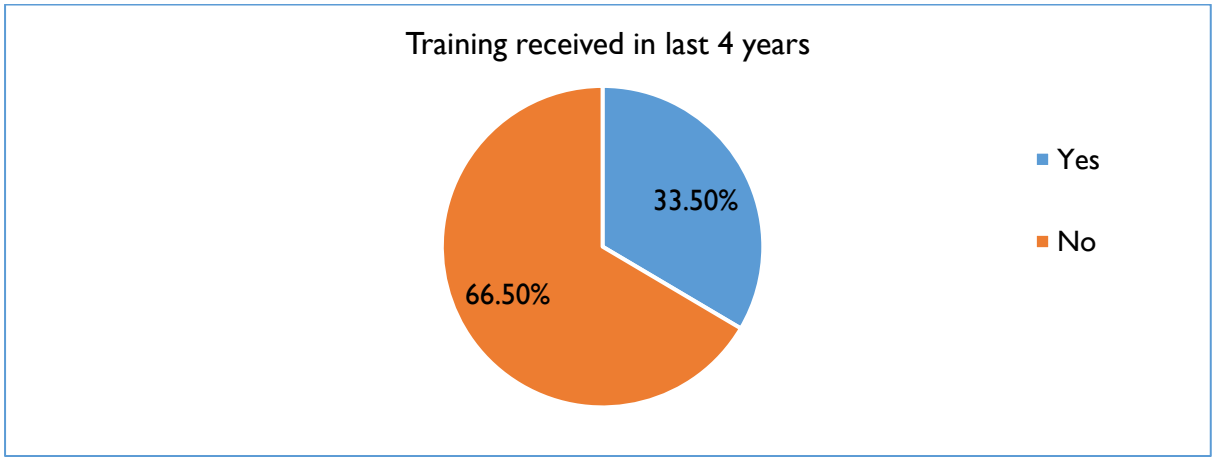

Figure 13: Training received by teachers in last four years

Additionally, the data revealed variations based on the type of colleges, indicating that teachers at government colleges (45.6%) were more likely to have received training compared to their counterparts in MPO and non-MPO colleges, where approximately 20% had undergone training (see figure 14).

Government Teachers: Continuation of training is important for teacher. If one teacher gets one or two training in his/her whole career, there is no possibility of developing one's skills & knowledge. Teachers are not fully devoted to teaching as they involve others work too. Teaching methods are not upgraded as per students need. Most of the teacher uses lecture method in the class and student involvement is not up to the mark.

Non-government teachers: Most of teachers had no training for professional development. It's a very concerning issue that without training a teacher cannot deliver quality education in classroom. As the collage authorities had no administrative knowledge local people or political people impose their roles on them. The number of students in classroom is very low, as they don't found classes are attractive. Classroom management is also difficult for teacher, as the students are not attentive at all. Also, if there had some scope of practicing physically that would have been better. Teachers were told about using the teaching materials, but they didn't use them properly for lack of proper technological skills, their willingness also absent.

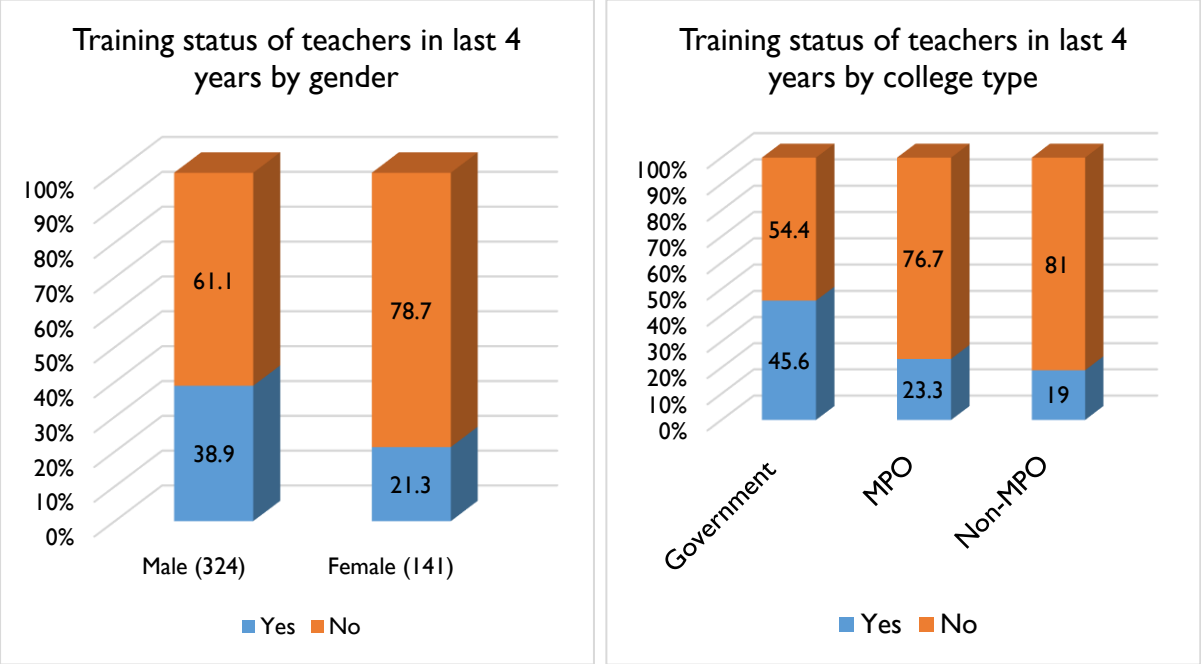

Figure 14: Training status of teachers by gender and college type

As per table 10, among the 156 teachers who have participated in professional development activities within the last 4 years, 40 (8.6%) have undergone training in "Pedagogy – methods and practices of teaching," while 51 (11%) have received "subject-based training." Additionally, 11 (2.4%) teachers have been trained in "Person with Disability Inclusions," 4 (.9%) in "Language," 24 (5.2%) in "Creative Question," and 16 (3.4%) in "Institute Management." Furthermore, 107 (23%) teachers have received training in "ICT," 4 (0.9%) in "Gender Equality and Social Inclusion," and 5 (1.1%) in "Formative Assessment." Additionally, 11 teachers have received training in other areas such as office work, APA, FM, and mental health.

Table 10: Teachers' training area

Area(s) in which you have received the training	Percentage (n=465)
Pedagogy – method and practice of teaching	8.6
Subject based etc.	11.0

Person with Disability inclusions	2.4
Language	.9
Creative question	5.2
Institute Management	3.4
ICT	23.0
Gender equality and social inclusion	.9
Formative assessment	1.1
Other training*	

*Office work, APA, FM, FTC, Mental Health, Innovation

Among the teachers who responded, 26.4% of teachers experienced the training that they received was/ were highly satisfactory, the experience of 68.9% of teachers was satisfactory and 5.7% of teachers were not satisfied at all with the training they had received. The rest of the teachers are assumed not to have any training at all as they didn't respond.

Table 11: Teachers' satisfaction about the training they received

To what extent the training(s) was/were satisfactory	Percentage
Highly Satisfactory	26.4
Satisfactory	68.9
Not satisfactory	5.7
Not satisfactory at all	0

The survey responses from higher secondary teachers revealed a notable disparity in their perceptions of training effectiveness, with a distinct preference for practical over theoretical approaches. A substantial majority of teachers, accounting for 51.38%, reported satisfaction with trainings that were practical, reflecting a desire for hands-on, experiential learning opportunities tailored to their teaching roles. In contrast, a significant portion of teachers, comprising 46.51%, expressed dissatisfaction with trainings perceived as theoretical, indicating a preference for practical, application-focused learning experiences.

When considering the relevance of training content, a vast majority of teachers, constituting 56.74%, emphasized the importance of trainings that were relevant to their subject areas and educational context. Conversely, a much smaller percentage of teachers, only 5.29%, reported dissatisfaction with trainings they perceived as irrelevant, highlighting a strong consensus among respondents regarding the significance of contextually relevant professional development opportunities. A notable discrepancy emerged between the satisfaction levels of teachers regarding the practicality of trainings. While 66.7% of teachers expressed satisfaction with trainings identified as practical, a substantial minority, comprising 33.95%, found trainings to be non-practical, underscoring the importance of aligning training content with the practical needs and preferences of educators. Regarding the applicability of training content to classroom settings, 17.2% of teachers reported satisfaction with trainings that were applicable, while a smaller but still significant proportion, 5.76%, expressed dissatisfaction with trainings they perceived as not applicable. These findings underscore the importance of designing training programs that are both relevant to teachers' professional contexts and practical in nature, thereby enhancing the overall effectiveness and satisfaction of professional development initiatives.

Table 12: Reasons behind teachers' satisfaction and dissatisfaction

Positive Reasons	Percentage	Negative Reasons	Percentage
Practical	51.38	Theoretical	46.51
Relevant	56.74	Irrelevant	5.29
Participatory	66.7	Non-Participatory	33.95
Applicable	17.2	Not- Applicable	5.76

Challenges Faced in the professional arena as a teacher

To address the challenges encountered in their teaching roles, the following breakdown was observed among the teachers: 125 (26.9%) teachers mostly lack professional development opportunities, 97 (20.9%) teachers lack teaching materials, 74 (15.9%) teachers mostly need training or support in additional subject-specific content knowledge, 65 (14%) teachers mostly need training or support on student participation and behavioral problems, , 29 (6.2%) teachers mostly need support to mitigate insufficient technological resources, 24 (5.2%) teachers need to improve teaching and/or pedagogical skills, 20 (4.3%) teachers mostly lack skills in dealing with psychological issues, 15 (3.2%) teachers need training or support in developing lesson plans, 14 (3%) teachers mostly need support from governing bodies or higher authorities, (1.3%) teachers mostly need training to support special needs students, and 3 (0.6%) teachers mostly need other forms of support, including enhancing assessment strategies, reducing competition for obtaining a GPA of 5.00, addressing infrastructural problems in colleges, lack of educated members in committees, shortage of teachers, lack of teaching-learning materials, dealing with power outages, managing larger numbers of students in classrooms, and addressing the need for transfers, among others. Therefore, it can be inferred that the most prominent area where teachers face challenges and require training or support is in the realm of professional development.

Table 13: Teachers need training to overcome the challenges they face

Challenges face in teaching need training or support to overcome	Percentage (n=465)
Lack of professional development opportunities	26.9
Lack of teaching materials	20.9
Need additional subject-specific content knowledge	15.9
Students' participation and behavioral problems	14.0
Insufficient technological resources	6.2
Need to improve teaching and/or Pedagogical skills	5.2
Lack of skill on dealing the psychological issues	4.3
Developing Lesson Plan	3.2
Inadequate support from Governing body/higher authority	3.0
Special needs students	1.3
Other*	0.6

*Assessment strategy enhancement, reducing the competition for getting GPA 5.00, infrastructural problem in college, lack of educated member in committee, lack of teachers, lack of TLM, loadshedding, bigger number of students in classroom, need of a transfer etc.

To address the needs of their students, teachers encounter various challenges that require training or support for resolution. The data reveals that 103 (22.2%) teachers mostly lack learning resources whereas 96 (20.6%) teachers face challenges with students from diverse backgrounds. Moreover, 55 (11.8%) teachers mostly face challenges with students exhibiting behavioral problems. 54 (11.6%) teachers face the most challenges with students with disabilities, while another 54 (11.6%) teachers mostly lack content/subject knowledge. Additionally, 49 (10.5%) teachers mostly need support from students' parents. Furthermore, 17 (3.7%) teachers mostly lack administrative support, while 4 (0.9%)

teachers face other types of challenges or require training/support to meet the needs of their students, such as managing classroom dynamics, coping with a high teacher-student ratio, addressing irregular student attendance, lack of allocation for educational tours and field experiences, and addressing a lack of student interest in studying, among others. Therefore, it is evident that the area in which most teachers face significant challenges and require training or support to meet the needs of students is the "Lack of learning resources."

Table 14: Challenges faced by teachers to meet students' needs

Challenges face in meeting the needs of the students	Percentage (n=465)
Lack of learning resources	22.2
Students from diverse backgrounds	20.6
Lack of content/subject knowledge	16.6
Students with behavioral problems	11.8
Students with disabilities	11.6
Lack of parental support	10.5
Lack of administrative support	3.7
Other*	.9

*Managing classroom, high teacher-student ratio, irregularity of students, lack of allocation for tour and direct experiences and lack of students' interest in study etc.

Teachers encounter various external obstacles that hinder their effectiveness in the classroom. According to the data, 214 (46%) teachers reported that their primary challenge is the shorter duration of class time than what is deemed necessary. Another 101 (21.7%) identified personal challenges as the main hindrance to their effectiveness. Additionally, 75 (16.1%) teachers cited numerous other challenges where they require support or training to enhance their effectiveness. Furthermore, 41 (8.8%) teachers emphasized the need for support from colleagues, administrators, and principals. These challenges include irregular student attendance, behavioral issues, low wages, students' lack of basic knowledge, methods of comprehensive questions (CQ), discrimination among institutions and salary, evaluation methods, family pressure, physical and mental conditions, frequent curriculum changes, student-teacher ratio, insufficient number of classrooms, low attention span of students, teaching aids, insufficient training, lack of library books, faculties, equipment, multimedia classrooms, refreshments, political pressure, concerns regarding future career prospects, student politics, inability to discipline students for misbehavior, among others. From this overview, it is evident that the primary challenge faced by most teachers is the shorter duration of class time, which limits their effectiveness.

Table 15: External obstacles for teachers

External obstacles prevent from being effective teaching	Percentage (n=465)
Shorter duration of the class	46.0
Personal challenges (e.g., stress, burnout)	21.7
Lack of support from colleagues, administrators, principals	8.8
Other*	16.1

*Irregularity of the students, behavioral issues, low wages, students' lack of basic knowledge, methods of comprehensive questions (CQ), discrimination among institutions and salary, evaluation method, family pressure, physical and mental condition, frequent curriculum changes, student-teacher ratio, insufficient number of classroom, the low attention span of students, teaching aid, insufficient training, lack of library books, lack of faculties, lack of equipment, lack of multimedia classrooms, lack of

refreshments, political pressure, worries relating to future career, students' politics, not being able to punish students for their trouble, etc.

Professional Support and Professional Development needs:

To address the challenges they face in their teaching practices, teachers have identified various needs. For instance, accounting for 31.2% (145) of teachers, expressed a need for adequate teaching aids, including ICT facilities. A significant proportion, 24.3% (113) of teachers emphasized the importance of having adequate time for planning and preparation, while 15.7% (73) highlighted the necessity of managing class sizes. Additionally, 11.4% (53) expressed a need for in-house training. Only a small percentage, 1.5% (7) of teachers, reported a lack of understanding on gender equality and social inclusion, while 3.7% (17) of teachers indicated a need for more support from the college governing body. Furthermore, 1.5% (7) requested mentoring and another 1.3% (6) of teachers sought peer support. Interestingly, 0.6% (3) of teachers stated they do not require any support, citing various additional resources such as addressing absent students, developing creative publication methods, ensuring attendance, providing equal opportunities for each subject, increasing salary, addressing insufficient teaching materials, monitoring system cells, enhancing multimedia support, raising parents' awareness, fostering student attention, promoting reciprocal cooperation, reducing teacher-student ratios, and managing student admissions. From these findings, it is evident that the most pressing need among teachers is for "Adequate Teaching Aids including ICT Facilities" to effectively address the challenges encountered in their teaching practices.

Table 16: Required resources to overcome the challenges teachers faced

Resources helpful to overcome challenges faced in teaching practice	Percentage (n=645)
Adequate teaching aids including ICT facilities.	31.2
Adequate time for planning and preparation	24.3
Manageable class size	15.7
In-house training	11.4
More support from college governing body	3.7
Better understanding on gender equality and social inclusion	1.5
Mentoring	1.5
Peer support	1.3
No support needed	.6
Other*	.6

*Addressing absent students, developing creative publication methods, ensuring attendance, providing equal opportunities for each subject, increasing salary, addressing insufficient teaching materials, monitoring systems, enhancing multimedia support, raising parents' awareness, fostering student attention, promoting reciprocal cooperation, reducing teacher-student ratios, and managing student admissions

In enhancing their teaching practice, educators find various resources beneficial. According to a survey, professional development workshops or conferences were highlighted by 54.2% (252) as their primary resource for improvement. 24.5% (114) teachers expressed a preference for self-assessment practices. Mentoring or coaching support from experienced teachers was cited by 9.2% (43) as the most helpful resource. Online resources, including articles, videos, webinars, and study circles, were favored by 5.6% (26) of respondents. Additionally, 2.2% (10) of teachers emphasized the significance of professional learning groups or communities. Peer observation and feedback were noted by 1.9% (9) of respondents.

Table 17: Required resources to improve teaching-learning activities

Resources would be helpful in improving teaching practice	Percentage
Professional development workshops or conferences	54.2
Self-assessment practice	24.5
Mentoring or coaching support from experienced teacher(s)	9.2
Online resources (e.g., articles, videos, webinars, study circle)	5.6
Professional learning group or community	2.2
Peer observation and feedback	1.9
Gender Equality and Social Inclusion (GESI) related knowledge	.6
Other*	.4

*Assessment, salary, training, and teaching materials

Gender Equality and Social Inclusion (GESI) related knowledge was considered helpful by 0.6% (3). Finally, 0.4% (2) identified other resources such as assessment, salary, training, and teaching materials. Overall, it is evident from the data that professional development workshops or conferences are the most sought-after resource for teachers aiming to enhance their teaching practice.

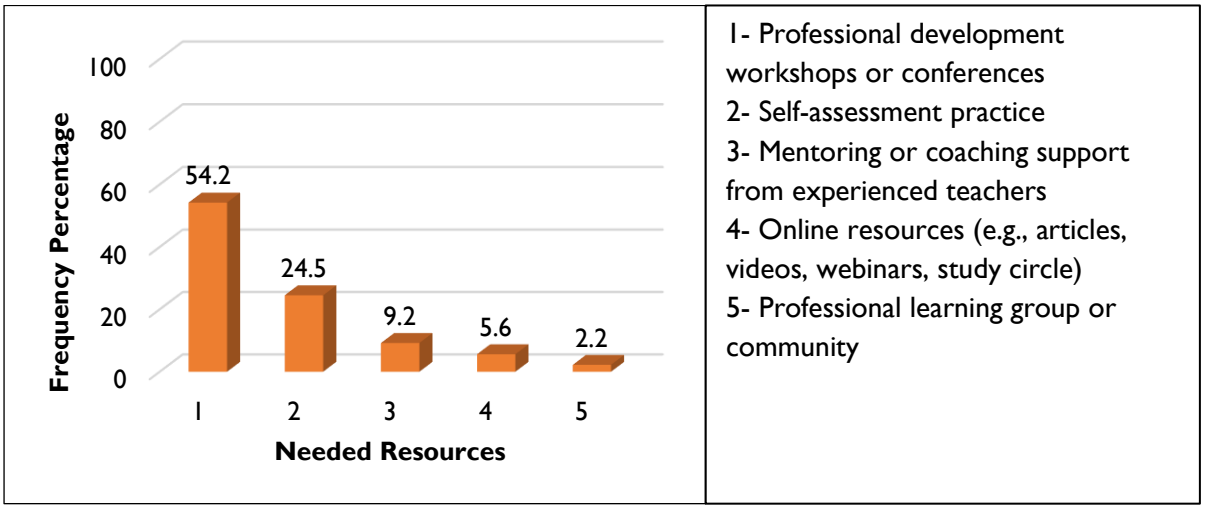

Figure 15: Teachers' requirement for resources to overcome the challenges

According to the data analysis, when asked about the specific areas deemed most important for their professional development, teachers provided varied responses. 32.9% (153 teachers) mostly emphasized the significance of honing Teaching and/or Pedagogical skills. 18.3% (85 teachers) stressed the importance of Subject-specific content knowledge. Ensuring a respectful and equitable working environment was mostly highlighted by 13.5% (63 teachers), while 9.9% (46 teachers) mostly emphasized the importance of building relationships with learners. Additionally, 7.5% (35 teachers) identified Curriculum Development as a key area for professional growth. Classroom/Learner management/engagement was cited by 8.4% (39 teachers) as crucial. A smaller proportion of respondents mentioned Lesson Plan (4.1%, 19 teachers), Teaching students from diverse backgrounds (1.7%, 8 teachers), and Assessment – tools & techniques (1.3%, 6 teachers), Educational Leadership (0.6%, 3 teachers), Inclusive Education Practice (0.6%, 3 teachers) are areas essential for their professional development. Moreover, a few teachers (0.4%, 2 teachers) categorized their needs under "Other," including aspects such as salary increment and sufficient teacher facilities. This analysis indicates a diverse range of priorities among teachers regarding their professional development needs. However, among all these specific areas, "Teaching and/or Pedagogical skills" is the mostly emphasized area for professional development of a teacher.

Table 18: Specific areas for teachers' professional development

Specific areas identified most important for professional development of a teacher	Percentage (n=465)
Teaching and/or Pedagogical skills	32.9
Subject-specific content knowledge	18.3
Ensuring respectful and equitable working environment	13.5
Building relationship with learners	9.9
Classroom/Learner management/engagement	8.4
Curriculum Development	7.5
Lesson Plan	4.1
Teaching students from diverse backgrounds	1.7
Assessment – tools & techniques	1.3
Inclusive Education Practice	.6
Educational Leadership	.6
Other*	.4

*Salary increments and sufficient teacher facilities

When it comes to implementing teaching methods acquired from various trainings and workshops, educators often require different forms of support. According to the data analysis, the majority, comprising 61.5% (286 teachers), expressed the most need for additional professional development training specifically focused on the teaching methods learned. Access to teaching-learning resources, including textbooks and materials, was cited by 25.2% (117) as the most crucial for successful implementation. A smaller percentage, accounting for 8.0% (37 teachers), mostly highlighted the importance of support from colleagues or administrators in the implementation process.

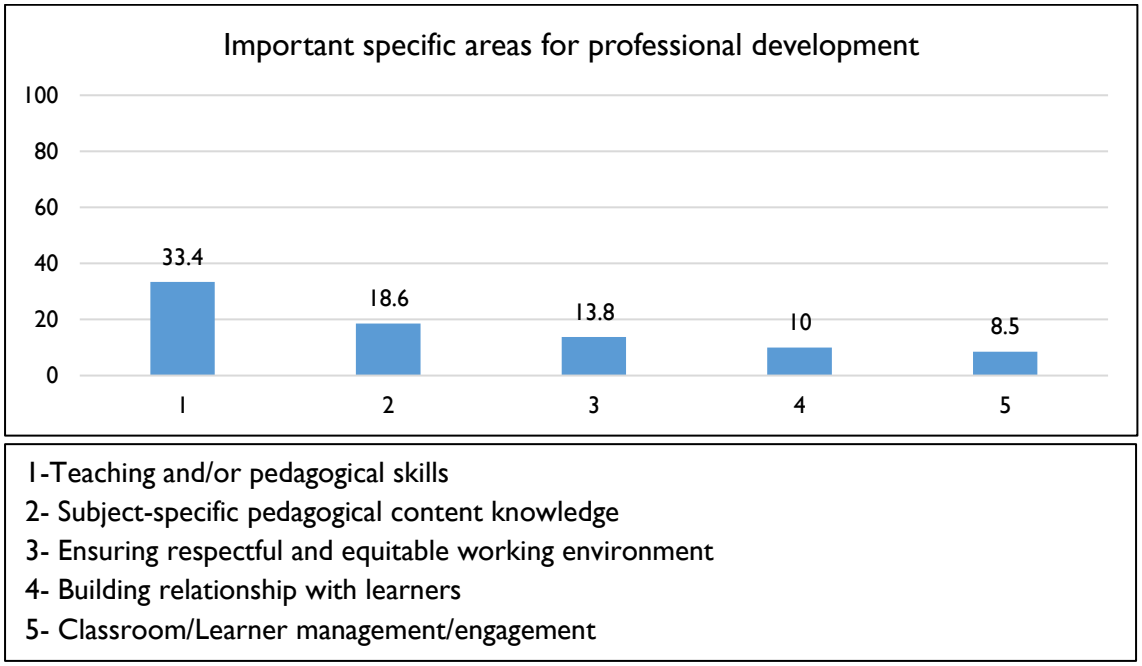

Figure 16: Areas of professional development for teachers

Furthermore, 2.2% (10) emphasized the necessity of access to Gender Equality and Social Inclusion (GESI) related knowledge products to effectively integrate learned methods. A minimal portion (0.4%, 2) categorized their needs under "Other," which included aspects such as suitable teaching environments, increased student participation, availability of ICT materials/equipment, support in

addressing student behavioral issues, financial support, infrastructural support, parental awareness, and mitigating issues like load shedding. This analysis shows the diverse array of support mechanisms required by educators to effectively translate training and workshop learning into classroom practice. However, "Additional Professional Development Training" is mostly needed by the teachers among all other support to implement teaching methods learned from previously held different trainings/workshops.

Table 19: Support needed to implement training knowledge

Support needed to implement teaching methods learned from different trainings/workshops	Percentage (n=465)
Professional development training on the teaching methods	61.5
Access to teaching-learning resources (e.g., textbooks, materials)	25.2
Support from colleagues or administrators	8.0
Access to Gender Equality and Social Inclusion (GESI) related knowledge products	2.2
Others*	.4

*Suitable teaching environments, increased student participation, availability of ICT materials/equipment, support in addressing student behavioral issues, financial support, infrastructural support, parental awareness, and mitigating issues like load shedding

Barriers to Participation in Professional Development

In identifying the barriers to participation in professional development, teachers cited various obstacles they encountered. According to the data analysis, one of the most faced challenges, impacting 22.6% (105) of teachers, is a Busy Class Schedule. Financial constraints also pose a significant hurdle, mostly affecting 22.4% (104) of respondents. Other prevalent obstacles include Difficulties in accessing professional development opportunities (19.6%, 91), Lack of awareness/information about available opportunities (10.1%, 47), and Distance to training locations (10.1%, 47). Additionally, Family or personal commitments (4.5%, 21) and Gender-based Social Constraints (3.0%, 14) were noted as the most problematic barriers to professional development. Teaching students from different backgrounds (3.2%, 15) and Insufficient support from college governing bodies (2.2%, 10) were also identified as challenges. A smaller percentage cited administrative obstacles, concerns regarding salary increments, and lack of training as additional barriers. Overall, the data indicates that a Busy Class Schedule and Financial constraints are the most prevalent obstacles faced by most teachers in participating in professional development opportunities.

Table 20: Obstacles for teachers' professional development

Obstacles identified by teachers for professional development	Percentage (n=465)
Busy Class Schedule	22.6
Financial constraints	22.4
Difficult to access professional development opportunities	19.6
Lack of awareness/information about available opportunities	10.1
Distance to training locations	10.1
Family or personal commitments	4.5
Teaching students from different background	3.2
Gender based Social Constraints	3.0
Insufficient support from college governing body	2.2
Other*	.4

*Administrative obstacles, salary increment concerns, and lack of training as additional barriers.

Motivations for Teaching and Professional Development:

In understanding the motivations behind teaching and professional development, teachers expressed a variety of factors that drive their commitment to the profession (see table 21).

Table 21: Things motivate teachers

Things motivates to teach	Percentage (n=465)
Making a difference in the lives of students	48.0
Sharing your passion for your subject area	29.5
Having a positive impact on society	14.0
Working with students from diverse backgrounds	5.2
Survival for livelihood	2.6
Other*	.2

*Development of competent citizens, self-confidence and satisfaction, morality enhancement, and the importance of training.

According to the data analysis, the most significant motivator, identified by 48.0% (223) of teachers, is the desire to make a difference in the lives of students. Additionally, 29.5% (137) cited Sharing their passion for their subject area as a key motivator, while 14.0% (65) mostly highlighted the aspiration to have a positive impact on society. Working with students from diverse backgrounds (5.2%, 24) and Survival for livelihood (2.6%, 12) were also noted as motivations for teaching. A smaller percentage mentioned other factors such as the development of competent citizens, self-confidence and satisfaction, morality enhancement, and the importance of training. Overall, the data indicates that making a difference in the lives of students is the most important motivating factor for the majority of teachers.

In exploring factors that would enhance motivation for teaching and professional development, educators identified various elements that would positively impact their enthusiasm for the profession. According to the data analysis, the most significant factor, identified by 43.2% (201) of teachers, is Higher Salary. Additionally, 20.2% (94) expressed that More opportunities for professional development would increase their motivation, while 14.2% (66) cited better benefits as a motivating factor. More recognition and appreciation for their work (10.8%, 50) and More opportunities for career growth (8.4%, 39) were also noted as important motivators. A smaller percentage mentioned A better work-life balance (1.7%, 8) as a factor that would enhance their motivation. Furthermore, 0.2% (1) categorized their motivations under "Other," which included factors such as good relationships with students. Overall, the data indicates that Higher Salary is the most important factor that would increase motivation for the majority of teachers.

Table 22: Things more motivate teachers

Things make more motivated to teach	Percentage (n=465)
Higher Salary	43.2
More opportunities for professional development	20.2
Better benefits	14.2
More recognition and appreciation for my work	10.8
More opportunities for career growth	8.4
A better work-life balance	1.7
Good relationships with students	.2

In exploring motivations for participating in professional development activities, educators cited various factors that drive their engagement in such endeavors (see table 23).

Table 23: Things motivate teachers for professional development

Things motivates to participate in professional development activities	Percentage (n=465)
Improving student's learning and psychological outcome	21.9
Career advancement opportunities	20.6
Formal Recognition/awards/certification from a world class university	17.6
Learning opportunities	14.6
Personal satisfaction	12.3
Financial incentives	11.0
Office order	.6

According to the data analysis, the most significant motivator, identified by 21.9% (102) of teachers, is Improving students' learning and psychological outcomes. Additionally, Career advancement opportunities (20.6%, 96) and Formal Recognition/awards/certification from a world-class university (17.6%, 82) were also noted as important motivators. Learning opportunities (14.6%, 68) and Personal satisfaction (12.3%, 57) were identified as factors contributing to motivation for professional development activities. Financial incentives (11.0%, 51) were cited by a smaller percentage of respondents. Furthermore, a negligible proportion (0.6%, 3) mentioned Office orders as a motivator. Overall, the data indicates that Improving students' learning and psychological outcomes is the most important motivator for the majority of teachers in participating in professional development activities.

Table 24 shows the types of Continuous Professional Development (CPD) opportunities that educators are interested in, where a range of options were identified. According to the data analysis, the most commonly preferred CPD opportunity, identified by 69.7% (324) of teachers, is Attending training courses.

Table 24: Types of CPD for teachers by choice

Type of Continuous Professional Development opportunities would be interested in	Percentage (n=465)
Attending training courses	69.7
Attending Workshops, Conferences etc.	14.6
Mentorship by Sr. Teachers	7.1
Online course	3.9
Peer learning and collaboration in Professional Learning Communities (PLCs) with other teachers	3.2
Other*	.2

*Direct training, financial aid, increased opportunities, and training in the nearest place

Additionally, attending Workshops, Conferences, etc. (14.6%, 68) and Mentorship by Senior Teachers (7.1%, 33) were also cited as important CPD opportunities. Online courses (3.9%, 18) and Peer learning and collaboration in Professional Learning Communities (PLCs) with other teachers (3.2%, 15) were identified by a smaller percentage of respondents. Furthermore, a negligible proportion (0.2%, 1) mentioned "Other" types of CPD opportunities. These included. Overall, the data indicates that attending training courses is the most preferred CPD opportunity, identified as the first priority by the majority of teachers.

Technology Access/Availability:

Based on the data provided, a significant majority of teachers have access to digital devices for professional development purposes. Specifically, 95.3% reported having access to a smartphone, while

16.1% indicated access to a tablet. In terms of larger computing devices, 52.9% have access to a laptop, and 28.0% possess a desktop PC.

Table 25: Teachers access to digital devices

Types of digital devices currently have access to (for professional development purposes)	Percentage (n=465)
Smart Phone	95.3
Tab	16.1
Laptop	52.9
Desktop PC	28.0
No access to digital device	1.7
Other (Smart board, Smart TVs)	

Additionally, a small number of respondents mentioned other digital devices such as smart boards and smart TVs. Only 1.7%, reported having no access to any digital device. Overall, the majority of teachers have access to digital devices that can positively impact their participation in professional development activities requiring digital resources.

According to the responses provided, the majority of teachers have access to various types of internet connectivity (see table 26). Specifically, 73.1% reported having access to Mobile Data, while 68.0% indicated access to WIFI/Broadband. However, a minor portion, 5.4%, reported they had access to Modem connectivity. Only 1.1% mentioned not having any form of internet connectivity. These findings suggest that most of the teachers have access to some sort of internet connectivity, which is potential side for delivering online professional development activities or access digital resources for teaching.

Table 26: Type of internet connectivity

Type of internet connectivity have access to	Percentage (n = 465)
Mobile Data	73.1
Wifi/Broadband	68.0
Modem	5.4
No Internet Connectivity	1.1

Data from table 27 shows that the satisfaction levels regarding the quality of internet connectivity among teachers vary. A significant portion, comprising 49.2% of respondents, expressed satisfaction with their internet connectivity, while 16.4% indicated being dissatisfied and 7.7% reported being strongly dissatisfied. Additionally, 21.2% stated that they were neither satisfied nor dissatisfied. A smaller percentage, 5.5%, reported being strongly satisfied with their internet connectivity. These findings suggest that while a majority of teachers are satisfied with their internet connectivity, there is still a notable portion experiencing varying degrees of dissatisfaction, which could impact their ability to effectively utilize online resources for professional development and teaching purposes.

Table 27: Satisfaction level of teachers regarding the internet services

Satisfaction level with the quality of internet connectivity	Percentage (n=457)
Strongly dissatisfied	7.7
Dissatisfied	16.4
Neither satisfied nor dissatisfied	21.2
Satisfied	49.2
Strongly satisfied	5.5

According to table 28, the affordability of available internet packages varies among teachers. The majority, comprising 60% of respondents, indicated a Neutral stance, suggesting that while they find the packages acceptable, they could be cheaper. Additionally, 24.7% reported finding the packages Unaffordable, with the basic plan stretching their budget. A smaller percentage, 10.1%, stated that the packages were Extremely Unaffordable, indicating that they cannot afford any packages. On the other hand, 4.6% of teachers found the packages Affordable, considering them to be good value for money and fitting within their budget. Only a minimal portion, 0.7%, reported finding the packages Extremely Affordable, indicating that they are easily within their budget. These findings highlight the varying perceptions of affordability among teachers, with a considerable portion expressing concerns about the cost of internet packages relative to their budget constraints.

Table 28: Affordability of internet packages

Affordability of the available internet packages	Percentage (n=457)
Extremely Unaffordable (Can't afford any packages)	10.1
Unaffordable (Basic plan stretches my budget)	24.7
Neutral (Packages are acceptable, but could be cheaper)	60.0
Affordable (Good value for money, fits my budget)	4.6
Extremely Affordable (Packages are easily within my budget)	.7
Total	100.0

The frequency of using Information and Communication Technology (ICT) devices and platforms for professional development activities varies among teachers (see table 29). The majority, comprising 49.1% of respondents, reported using ICT devices and platforms on a Daily basis for 1-2 hours. Additionally, 11.7% indicated using them weekly for the same duration. A significant portion, 32.9%, reported using ICT devices and platforms occasionally for professional development activities. However, a small percentage, 6.3%, stated that they never use ICT devices and platforms for such activities. These findings suggest that while a substantial portion of teachers engage with ICT devices and platforms for professional development activities regularly, there are still some who either use them less frequently or not at all, potentially impacting their access to digital resources and participation in online learning opportunities.

Table 29: Frequency of using ICT by teachers

Frequency of using ICT devices and platforms for professional development related activities	Percentage (n=462)
Daily (1-2 hours)	49.1
Weekly (1-2 hours)	11.7
Occasionally	32.9
Never	6.3

Ways of overcoming perceived by the zonal officials, principals, VPs and teachers,

Training is mandatory for all collage teachers. A senior teacher said-

> "*Teachers need formal training. Formal training will create accountability among teacher that they must develop their skills and apply it to classes. Not every teacher wants to develop on their own. For that I would want every teacher to be part of training process. At least they should be trained on the pedagogical side off the education.* R.RAC.T, IDI

Teaching materials should be sufficient for all the collage. Monitoring system should be digitalized. Director of Rangpur region said that-

"if we can establish a digital monitoring system, we can monitor all the s with the manpower that we already have. For example, s can send us the attendance information of the students and teachers on a regular basis so that we can know which has absenteeism. (R.D)"

Colleges should be facilitated by addressing its need. Director also said:

We are taking initiative to find strong and weak s. We will soon visit different districts where DEO will gather the data on enrollment, number of examinees, academic results etc. of the last 5 years. We will send these to the Directorate of Secondary and higher secondary education. There is that are overcrowded with students even in Rangpur city, whereas others do not get students. This survey will mitigate that problem as the director hopes to control enrollment. (R.D)"

Ensure ICT support for all the collage and skilled teachers for supporting ICT tools in the collage.

Scope of training modality

Zonal education administration, principal and vice-principals, and teachers demonstrated a huge demand for training. However, as almost all the colleges are in short of adequate teachers, both teachers, principals, and vice principals expressed a lack of interest in long and residential training. It appears most teachers prefer either in-person or virtual training for them. In the case of physical training, they suggested short-term training in their nearest venue (in their locality that can be).

Out of the 169 teachers who responded to this question, 84% received training in an in-person setting. Another 4.7% teachers received training in an online setting, while the remaining 11.2% teachers received training in a blended setting. As indicated by the data, the majority of teachers who received any training did so in an in-person setting. However, when the teachers were asked about their preference regarding training modality, out of 465 teachers 153 opined on their preferred training modalities for their professional development purpose. Findings in figure 17 show that around half of the responded teachers (49.3%) preferred in-person training that indicates that they value face-to-face interactions, real-time feedback, and hands-on demonstrations for their professional learning. While a smaller group (17.8%) opined for online training as they appreciate the flexibility and accessibility of online courses. However, around 32.9% of the teachers preferred a combination of traditional and digital learning methods, recognizing the benefits of both.

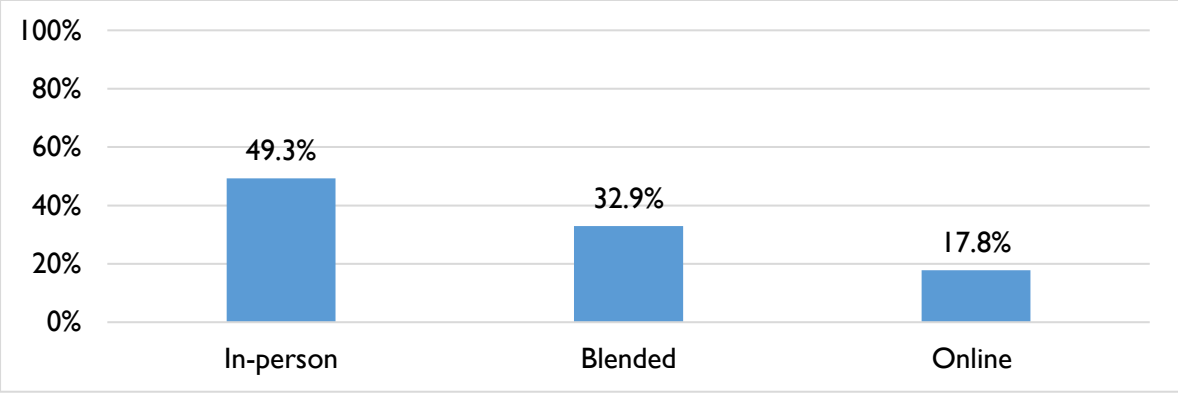

Figure 17: Teachers' preference for training modality

Qualitative data from interviews with teachers further supports the findings, indicating a preference for in-person training among the majority. However, a significant portion also favor online and blended modalities for their professional development. Here are some key insights from the interviews:

Preference for In-person Training: Many teachers value face-to-face interactions, real-time communication, and the opportunity to observe and learn from trainers and colleagues. They highlight the importance of eye contact, live question-answer sessions, and the ability to build relationships. One teacher (10SSC2M1) said, "I will always pay more offline for my training. Because there is an eye contact here. Here are live questions asked and answered. In addition, communication can be improved starting from building up relationships with others." Another teacher (10ADC2F3) said, "Offline training will be better for us. Online, sometimes we have to face network issues, and sometimes the lack of knowledge also causes us about the online classes. So, I prefer if the class organized in college and in workshop method, it could be better for all of us."

Advantages of Online Training: Some teachers acknowledge the benefits of online learning, such as flexibility, accessibility, and the ability to review recorded sessions. They appreciate the opportunity to learn from experienced teachers remotely and emphasize the effectiveness of online courses, particularly during the COVID-19 pandemic. A teacher (10RC1M1) said about it that "I find the online course most effective. Because I have done many courses during Corona, they have helped me a lot and I have learned a lot from them. Also, cooperative learning with teachers is also very good. A teacher helping a teacher when we can't." Another teacher said in in-depth interview that:

> *"Now is the era of online that has many advantages. So, if I have a device then I can easily learn many things online. Suppose I have an online class, I can record it and watch it again and again. Where I do not understand, I can repeat. But I can't do it in other mediums. Online and technology media is good to learning. Along with you here online but it happens that I can learn better with maximum support from the colleagues and senior teachers in online."* - 10ADC2M1

Blended Approach: Several teachers express a preference for a blended approach, combining online and offline components. They suggest using online platforms for longer training sessions and theoretical knowledge delivery, while reserving in-person workshops for hands-on practical activities and collaborative learning. A teacher (07BGDC1F2) said in interview that, "Workshops and blended teaching and learning formats are most effective and engaging, Because, at first trainer can provide theoretical knowledge through online and then provide hands on practice in offline." Another teacher said,

> *"I think every way should be welcomed because in this era we need to be present in online, with that we also must take training in offline. So online offline workshop, all are welcome. Sometimes if it is only online, we will not concentrate on it deliberately. So, every way will be welcomed."* - 03RADC2M1

Importance of Access: Around half of the responded teachers preferred online and blended modality for their professional development program. However, they showed concerns about equal access to online resources are raised, highlighting the need for flexibility in training delivery to accommodate all teachers, regardless of their access to technology.

Overall, the qualitative data aligns with the quantitative findings, emphasizing the importance of offering a variety of training modalities to meet the diverse preferences and needs of teachers for their professional development.

Scope of training facilitation

Participatory and hands-on training methodologies appeared as the most preferred training methodology mode by the teachers. Out of 465 teachers 153 opined on their preferred training facilitation for their professional development purpose. Findings show that the largest group (62.5%) chose participatory training as they love interactive and collaborative learning experiences would enable them in engaging activities as part of their professional development efforts. Moreover, more than one-third of the teachers (37.5%) were found interested in experiential learning to apply

theoretical knowledge in real-world or simulated scenarios through practical or simulation of the learning experiences. So, these findings emphasize the importance of offering diverse training approaches to cater to the varied preferences and learning styles of teachers, ensuring effective professional development over the next five years. For blended training, most of the participants suggested delivering the theoretical part online and hands-on part to deliver through in-person training.

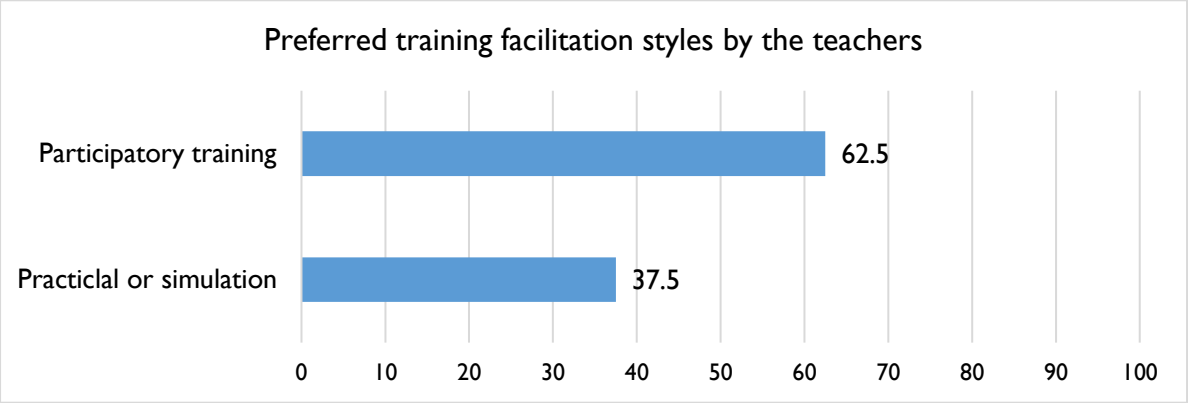

Figure 18: Preferred training facilitation style of teachers

Qualitative data from interviews and focus group discussions (FGDs) with teachers echo the findings of the study and provide additional insights into preferred training methods. Here are some key points:

Hands-on Experiences: Teachers emphasize the importance of hands-on activities, particularly in light of the new curriculum's focus on practical learning. A teacher (04CHC2M3) said that "I would prefer hand on experiences. Our new curriculum is also focusing on that. I think for me more important thing is having depth content knowledge." They believe that depth of content knowledge can be best achieved through practical application.

Workshop-based Training: Workshop formats are favored for their segmented structure, providing opportunities for hands-on learning and practical application of theoretical knowledge. Teachers find workshops effective and engaging, especially when they receive feedback on their performance. A teacher said, "Workshop-based training seems to be most effective as it is taught segment wise and has more opportunities for hands-on learning." Another teacher (03RADC2F2) explained how workshop-based training session benefited the trainee teachers. He said, "I find workshops to be a very attractive training method. It allows for simultaneous training with experienced teachers from various backgrounds, which results in learning a lot from everyone."

Cooperative Learning: Collaborative learning with experienced teachers is highlighted as an effective method. Teachers find it productive and engaging, as it allows them to learn from each other's experiences and expertise. One teacher (07RGC1M2) said, "I find cooperative learning through experienced teacher most effective and interesting. I find it makes learning more productive from getting insight and experience from other fellow teachers."

Practical Application: Teachers express a preference for training programs that include both theoretical sessions and practical components. They believe that applying what they learn in real-world scenarios enhances their understanding and retention of the material. A teacher said,

> *"I believe that if there is a practical aspect to the training along with the theoretical sessions, where we can apply what we learn, it would be even more beneficial for us. Workshops would be particularly appealing to me as they provide hands-on experience, which I find very attractive."* - 01RGC1M2

Additionally, quantitative findings shows that teachers would be interested in mentorship by the senior teachers, peer learning and collaboration in PLCs with other teachers along with attending training courses, workshops, conferences, and online courses (See: Table …). Thus, it indicates that teachers prefer to learn collaboration and hands on experiences that would help their profound understanding of the concept and fullest acquisition of the skills.

Overall, the qualitative data underscores the importance of participatory and collaborative learning approaches, as well as hands-on activities, in teacher training. Workshop-based formats are particularly favored for their effectiveness in providing practical skills and knowledge. These insights complement the quantitative findings and further inform the design of teacher professional development programs.

Feasible Training duration

Teachers indicated short training duration (e.g., not more than 15 days) is preferable for professional development. According to them, 3 to 15 days training duration would be helpful for them, and longer duration of training is difficult to continue and hold attention in some points. However, some teachers suggested for long duration of training (25-30 days) as well.

> *"... the trainings shouldn't be long-term. Training should be short-term and applicable. Teachers have families, accommodation issues. So, they will feel retrained to attend in long-term trainings. 10-15 days training duration would be preferable."* - 04CSC1M3

Few teachers also suggested for 6month to 1 year training program on foundation on teaching pedagogy. Respondents also opined that each training should be followed by a Refreshers training after a certain time to track their progress and provide relevant feedback. A teacher said,

> *"Yes. In my opinion, the training program's duration should be 15-20 days. And, after completing the main training program, they should design some 2-4 days training program arranged annually to observe our progress. I think that will be more helpful."* - 07CGDC1F2

Another teacher (07RC2M2) said, "I can do it up to 15 days maximum. In that case it should be ensured that the distance is kept short, and the training is completed between 10 am and 04 pm." The reason they refused long training is that keep them absent in the classroom for long time and teaching-learning activities hampered due to the long absent in the institute. For instance, a teacher said,

> *"I am the only teacher on ICT against 2700 students. If I leave the campus to join some training program, students will miss their class and will not be able to finish syllabus. There was a course offered by CEDP which was to be organized in Gojaria Hightech park, Munshiganj. It was 28 days long and staying away in Munshiganj for this long period was not possible."* - 01RGC1M3

From gender perspective, long duration is not suitable as well. According to the respondents, long training is difficult to attend for the female teachers keeping their family away for long time, specially who have young baby and mother are mainly responsible for taking care of them. For instance, on female teacher (01HMSDG2F1) said, *"In this moment I can't travel long distance to take the training. I also can't stay outside my home for long period as I have a little baby".*

Though most teachers talked about daylong training, however, some teachers opposed the idea of daylong training rather proposed for short duration of training each day by reducing it to 2-4 hours and not more than 1-2 hours at a time. One teacher (07SGWC1M2) said, "In this case I think if the training is 2/3 hours daily and total 3 days it will be interesting, and many people will be interested." Following statement also echoed it:

> *"To say about the duration i think the whole day training sometime become boring. So, I think when it is a whole day training the duration can be reduced 1or 2 hours. To say about the method, it depends on the trainer and the topic."* - 01RGC1M1

It appears that office hours are the most favorable time for professional development training in the case of in-person training. However, in the case of online training, most (48%) prefers weekends that they can attend from their home. Besides, 5.7% teachers prefer it during the afternoon, 12.3% teachers prefer it during the evening, 27.5% teachers prefer it during the weekend, and 5.7% teachers prefer it during other vacations. As indicated by the data, most teachers prefer receiving the training during office hours.

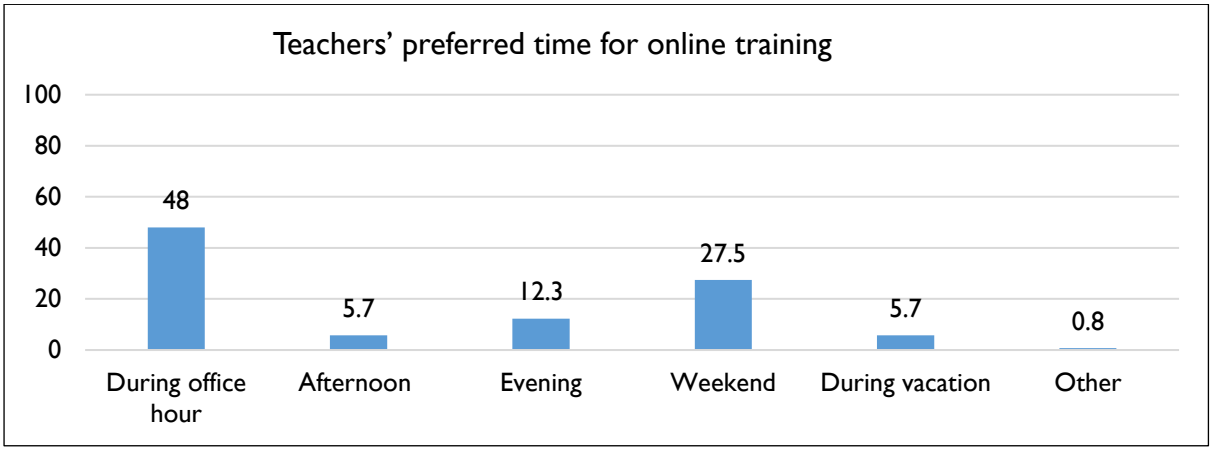

Figure 19: Teachers' preferred time for training

In the interview teachers explained the reason for choosing training time. The respondents who preferred office hours mentioned that outside office hour it is tough for them to manage time for attending in training program as they remain engaged with their families and other responsibilities after office hours. For instance, one teacher said,

> *"... after office hour we have our own engagement with family and friends. We also have different social duties. So, it is hard to manage time after office our or during weekend. It means depriving our family and friends from our services as well. So, I would say that office hours are best for training program when we can fully concentrate in the program we are desired for."* - 10RIC2M1

However, other teachers provided different opinion. According to them, after office our, weekend or vacation period is suitable for training. One teacher (07RGC1F3) said, "we have classes and various board exams. In that case I would say during office hours but if training is done during holidays, then it is better." Teachers who preferred after office hour or vacation period are found much concern about their academic duties. According to them, training during office hour will hamper their regular academic activities. For instance, one teacher (10SSC2M2) said, "I took my ICT training during vacation. As a physics teacher in our college, I am engaged in a line where if I go anywhere in the training the students will face hindrance or harm. In that case afternoon or Fri-Sat time will be good for me for training." Similar opinion found from another teacher who stated,

> *"... since I have to take the classes of students in my college and there is no other ICT teacher in my college, I think that the holidays for me, like Eid holidays or summer holidays or the holidays during the examination period, if I can take the training, it will be convenient for me."* - 10NSC2M1

Scope of training content

Table 30: Training contents ranked by teachers

Training content suggested by the Teachers	Percentage (No.465)
Teaching and/or pedagogical skills	32.9

Ensuring respectful and equitable working environment	13.5
Building relationship with learners	9.9
Classroom/Learner management/engagement	8.4
Curriculum Development	7.5
Lesson Plan	4.1
Teaching students from diverse backgrounds	1.7
Assessment – tools & techniques	1.3
Inclusive Education Practice	0.6
Educational Leadership	0.6

The quantitative analysis of responses from teachers regarding their professional development needs reveals a diverse range of priorities, shedding light on the areas they consider most crucial for their growth and effectiveness in the classroom (See: Table 30). Teaching and/or Pedagogical skills area was overwhelmingly emphasized by 32.9% of teachers, indicating a strong desire to enhance teaching methodologies and instructional techniques. Approximately 18.3% of teachers stressed the importance of deepening their understanding of subject matter content, highlighting the significance of subject expertise in effective teaching. About 13.5% of teachers emphasized the importance of fostering a respectful and equitable workplace culture, indicating a need for support in creating inclusive learning environments. Nearly 9.9% of teachers identified building strong relationships with their students as a crucial aspect of professional development, recognizing the impact of positive teacher-student relationships on learning outcomes. About 8.4% of teachers highlighted the importance of effective classroom management and learner engagement strategies, indicating a need for support in creating conducive learning environments. About 7.5% of teachers identified curriculum related knowledge as a key area for their professional growth, suggesting a desire for involvement in shaping educational content and delivery methods. A smaller proportion of respondents mentioned areas such as lesson planning, teaching students from diverse backgrounds, assessment tools and techniques, inclusive education practices, and educational leadership. Overall, while there is a diverse range of priorities among teachers regarding their professional development needs, "Teaching and/or Pedagogical Skills" emerged as the most emphasized area. This underscores the importance of enhancing teaching methodologies and instructional techniques to support effective teaching and learning practices in the classroom.

Based on teachers' preferences and professional challenges related findings, the following list outlines content areas that should be covered in the training program for teachers' professional development:

Table 31: List of potential training areas/contents for the teachers

Teaching and Pedagogical Skills Enhancement ● Effective instructional strategies ● Classroom management techniques ● Differentiated instruction methods ● Active learning strategies ● Technology integration in teaching ● Lesson planning and instructional design	**Fostering Respectful and Equitable Environments** ● Strategies for promoting diversity and inclusion ● Creating a positive classroom culture ● Addressing biases and stereotypes ● Teaching students from diverse backgrounds
Subject-Specific Content Knowledge ● In-depth understanding of subject matter ● Content alignment with curriculum standards	**Building Relationships with Learners** ● Establishing rapport with students ● Cultivating a supportive learning environment ● Communication and interpersonal skills development
Knowledge on Curriculum related Competency ● Curriculum objectives and competencies	**Other Relevant Areas** ● Assessment strategies and techniques

• Aligning curriculum with institutional goals and plans • Design and assessing curriculum implementation plan	• Inclusive education practices • Educational leadership skills development • Advocacy for improved teacher facilities and professional support

By addressing these content areas in the training program, teachers can enhance their professional competencies and effectively meet the diverse needs of their students, ultimately contributing to improved teaching and learning outcomes in the higher secondary level education system.

Scopes of access to ICT

Both quantitative and qualitative data indicates that despite the teachers are not highly or adequately equipped with ICT facilities; most of the teachers have access to device (98.3%) and internet connection (98.9%). So, a very small number of teachers are out ICT device and internet connection. This high percentage of access to ICT device and internet connection will help them get access to online training. However, in terms of training, only 23% teachers got training on ICT and most of the teachers remain out of ICT training that is essential to equip their skills for online/blended training modality.

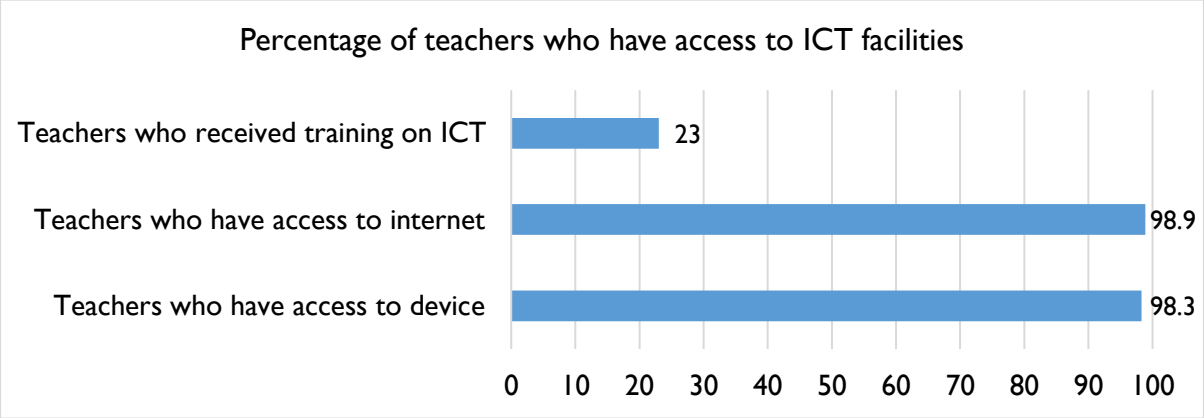

Figure 20: Teachers access to ICT and Internet

Scope of setting/ensuring inclusiveness

It appears that female students excelled over boys in some cases of attendance and participation. Female teachers are reported increasingly taking roles and responsibilities than before. Further, students with disabilities were found facilitated in some colleges. For instance, Saidpur College's science class made a special seating arrangement for twelve grade students (See picture). Language barriers in ethnic minority areas also found another area to address in teacher training to ensure their effective participation in teaching-learning practice, specially in ethnic minority areas and colleges where ethnic minority student enrolled.

Gender Equality and Social Inclusion related training needs

In teachers survey, only 3% teachers identified gender-based social constraints as a professional development related obstacle, only 2.2 reported that they need access to Gender Equality and Social Inclusion (GESI) related knowledge products to implement their teaching methods they learned from different training/workshop and only 0.6% reported that inclusive education practice is important for professional development of a teacher.

Figure 21: GESI related responses by percentage of teachers

It indicates lack of teachers' knowledge and awareness regarding gender equality and social inclusion. Teacher survey shows that 0.9% teachers had training GESI. Further in-depth interview also revealed it. Besides, only 1.5% teachers who participated in IDI attended any training related to gender equality or inclusion in education. Additionally, around 4% of teachers got training on inclusion those included very limited contents (few sessions in other training) on GESI. Overall, of all categories of respondents, only 2.14% got training on GESI.

Table 32: GESI related findings

Training needs on Gender Equality and Social Inclusion	Teachers (n=133)	Educational Leaders (n=76)	Education Officials (n=15)	Teacher Trainers (n=10)	Total (n=234)
Percentage of respondents got any training on Gender Equality and Social Inclusion	1.5	3.95	0	0	2.14

Training Venue Choice

According to the responses provided by the teachers, a vast majority, accounting for 95.5%, expressed a preference to attend training located near to the college. On the other hand, only 3.9% of teachers indicated that they would not prefer to attend training sessions near their college. It's noted that 3 teachers did not respond to this question.

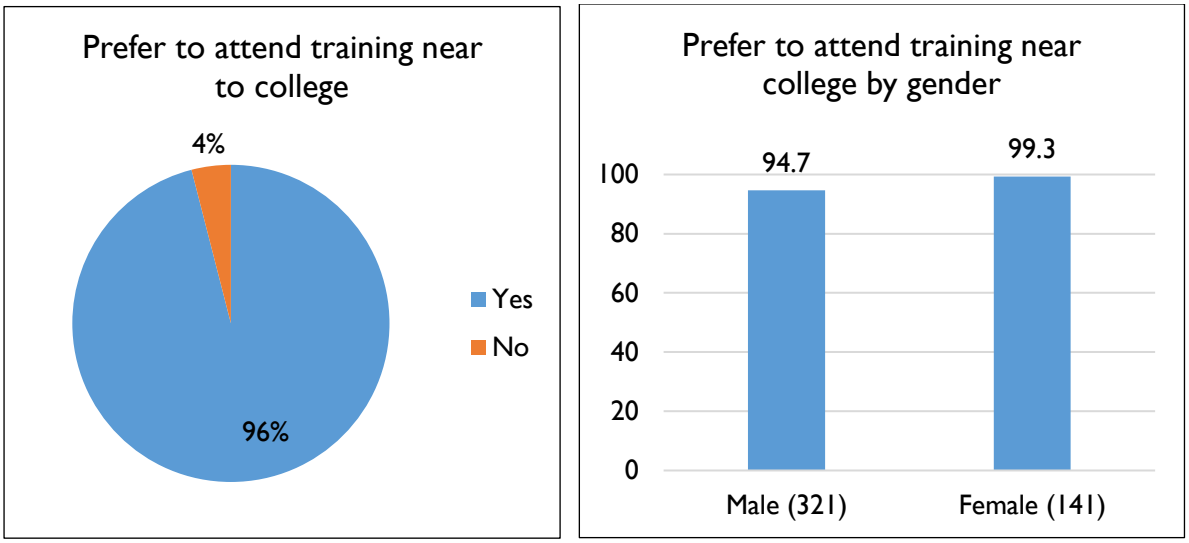

Figure 22: Teachers' preference for training venue

Apart from that qualitative and quantitative data indicates a gender perspective on changing training modalities, particularly regarding the preferences of female teachers, the following considerations should be integrated into the training program design:

Venue Proximity: Consideration should be given to locating training venues near participants' homes or institutes to reduce travel time and inconvenience, especially for women who have family responsibilities. Teacher's statement reflects the concern and one teacher (13KSDC2M3) said about it that, "I think it would be better if the training session will be held at our nearest place so that we can easily get the training without any hassle besides can continue our class in our college also. Duration should not be more than 10-15 Days for one training."

Online Training Options: Provide online training options to accommodate the needs of female teachers who may prefer the flexibility of remote learning, especially for long-duration or distant training sessions.

Short-Term and Flexible Formats: Offer short-term training sessions with breaks to address concerns about leaving families for extended periods. This could include organizing shorter, more frequent training sessions throughout the year rather than longer sessions at less frequent intervals. A teacher said regarding this issue that,

> *"We, female teachers, have a family to look after. Going and coming from the training station is very painful, it kills our valuable time and energy. If the training is residential and short distance, it will be easier. Apart from this, online training can be a good option providing more learning and training participation flexibility."* - 24RAC2F1

Residential Facilities: Consider providing residential facilities or hostels for female participants who may need accommodation during training sessions. Ensure that facilities are family-friendly, with provisions for childcare if needed, to facilitate their participation. Because it was reported as a crucial issue for the female teachers. For instance, one teacher trainer said,

> ***"****Trainees have preferences about the format of the training session. Increasing the number of training days and reducing the operating time is an example. Facilities should be increased for trainees who have to take training from far away. Many female trainees do not want to train here leaving their children at home. And we do not allow that mother to participate in class with the child. So, if we can arrange hostels for those mothers and arrange separate rooms for children to play, then it will be more effective."* **-** MYHSTTIAD

Flexibility for Balancing Work and Training: Allow participants to continue their regular work responsibilities, such as teaching in their colleges, while attending training sessions, by scheduling sessions during breaks or holidays. A college principal said in support of this opinion that,

> *"Teacher hesitates and gives personal reasons not to attend in long duration trainings, especially when they have to leave their family. Female teachers face more issues regarding this. So, short term trainings with breaks would be beneficial and some changes in the format should be brought."* **-** 25PAC2M1

By integrating these considerations into the training program design, education officials can ensure that the training meets the needs and preferences of female teachers, ultimately enhancing their participation, engagement, and effectiveness in professional development activities.

3.5 Key Strengths and Challenges

3.5.1 Strengths and challenges faced by education leaders: Principals and Vice-Principals

Principals and vice-principals of higher secondary colleges in Bangladesh exhibit strengths that contribute to creating an enabling environment for teaching and learning. Firstly, they demonstrate a

strong commitment to fostering an inclusive and supportive atmosphere conducive to student success. Their eagerness to take on mentoring responsibilities underscores their dedication to nurturing the professional growth and development of faculty members, fostering a culture of continuous improvement. Additionally, the active involvement of governing bodies in assisting principals and vice-principals in implementing new practices reflects a collaborative approach to educational leadership, facilitating innovation and progress within college settings. Moreover, the presence of student advisor teams in many colleges signifies a proactive effort to address student needs and concerns, promoting holistic development and well-being. These strengths highlight the leadership's proactive stance in promoting a positive educational experience and enhancing overall institutional effectiveness.

3.5.1.1 Key strength perceived by Principals /Vice principals

Many colleges organized student advisor team. Students share their any kind of problem with the advisor. A principal from a collage said:

> "*I try to advice and groom whoever comes here as a teacher. I instructed them to make lecture sheet. I have council with them on how to engage students in the class. We have a vigilance team to monitor the classes. I do have another chamber other than this room that we are now sitting in. It is equipped with CCTV through which I can monitor all the classes and different areas of the college."* RRGCP

Each college has a teachers' council where principals and vice-principals discuss the academic and administrative strength and weakness, gap, decision, and initiatives for academic betterment of the college. Teachers' council also used for follow-up the decision and initiatives made before.

3.5.1.2 Key challenges perceived by the principals/VPs

Staff shortage and workload related challenges

Some of the MPO and Non-MPO colleges do not have any regular principals working there. Thus, the vice-principals of the colleges play the role of acting principals although they have administrative limitations to take necessary initiatives.

Principals are overwhelmed with lots of responsibilities and almost with everything in college.
One of the principals was saying that-

> *"I have to look after all things in our college….. I took our college campus under CCTV camera, made a garden, and reconstructed the Shaheed Minar (Martyr Monumen). I have to monitor everything. Even I made a policy that no student be admitted to the science group in this college under GPA 4.50. All day and night, I am always here to look after."* 26GNC1FP

Overloaded with all the tasks, questions of designating agency or distributing leadership roles. One of the principal explained the situation and stated that:

> *"There are many things to do. Class management, class monitoring, teachers monitoring, form filling work, and admission work all must be done. If there is a public exam, prepare the venue for it. It also includes the formation of various committees and governing bodies. Sometimes the secondary and higher education department also must do some work. The work also has some involvement with the National University."* 17DDDCP

Lack of leadership/management training

Many of the MPO and Non-MPO college principals do not have any leadership or management training after joining the post. They further reported that they have not provided with written job description for the principals and vice-principal position.

Political Challenges

In certain instances, principals and vice-principals encounter political obstacles. Some colleges witness student involvement in politics, leading to unauthorized demands that exert pressure on college authorities. Additionally, political pressure may arise from local political groups in other cases. At times, these political entities organize demonstrations and other events even when teaching-learning activities or exams are in progress. Managing through these political challenges posed by the local committee of the current ruling party is a real struggle for them.

Financial challenges for college development and students' affairs

Numerous colleges, particularly those located in rural areas, encounter financial challenges regarding infrastructure development, student stipends, and tuition fees. Limited budgets prevent these colleges from undertaking necessary infrastructure initiatives. Furthermore, many students require fee waivers, but the authorities lack funding to accommodate these requests. On the other hand, the absence of various forms of compensation or remuneration for teachers has presented a significant challenge.

Tension between Principal and VP

Sometimes, there is a tension between Principal and Vice-Principal. Due to their different ideology, the tension grows and sometimes the college staff divides into two groups. For example, a Vice-Principal stated that-

> *"I had a moral conflict with the principal of the college who joined here in 2012. Some teachers at our college faced discrimination by Principal Monish Paul (Pseudonym). Several teachers became government teachers, but I was a victim of his discriminatory attitude. …I was on the students' stipend selection committee at the time, but I am not anymore. You won't believe it; I was convener of the form fill-up committee in 2018 but they demanded 20% undue payment from me and I denied."* 01RGC1VP

Challenges of newly nationalized colleges

Newly nationalized colleges face some challenges regarding governance, teacher shortage, funding and others. For instance, a Principal mentioned that-

> *"When I joined this college as a principal, I faced many challenges. This college has been newly listed as a public college. When I came here, I was exposed to a new environment. The college is government now but still the teachers' salary comes from the MPO. Moreover, there were no modern educational materials in the classrooms. There is no official to look after the financial affairs at the college. I have to deal with them in different ways."* 28HJM1MP

Similarly, a principal from another newly nationalized college stated that-

> *"Now, I manage my academic activities with guest teachers. I have to pay them from my managerial body or college fund. It is challenging for me to manage this every month. Our game teacher retired few months ago. I cannot manage anyone for this. It became challenging for me how I will manage because there is no guest game teacher. Number of classrooms are few. When board exam held it become tough for me to manage seat them properly."* 27BRH1MP

3.5.2 Strengths and challenges faced by education leaders: Regional offices

3.5.2.1 Key strength perceived by the regional offices

Based on the interview with the Zonal Education Officials, the findings on the strengths of higher secondary education in their areas can be summarized as follows:

Qualified Teaching Staff: A substantial presence of teachers with higher degree certificates, many of whom are also involved in teaching at graduate and postgraduate levels, indicates a high level of competence in content knowledge among the teaching staff at the higher secondary level.

Effective Monitoring Policy: Well-formulated policies for monitoring and close scrutiny of institutions have been implemented, leading to positive developments across various areas of higher secondary education.

Improved Attendance Rates: Bringing all higher secondary institutions under close monitoring has resulted in increased attendance rates of both teachers and students, contributing to positive changes in the education sector, including reduced dropout rates and increased female education rates.

Streamlined Admission Process: The government's initiative to implement a streamlined admission program for higher secondary level colleges has simplified the college selection and admission process for students, promoting accessibility and convenience.

Well-Defined Academic Framework: The establishment of a comprehensive framework by the government for higher secondary education has provided clarity and structure to the academic calendar, ensuring smooth conduct of classes, examinations, and administrative processes.

Efficient Registration Process: The role played by education boards in the registration process has streamlined administrative procedures for students, eliminating the need for re-registration at different levels of education and promoting efficiency and convenience.

3.5.2.2 Key challenges perceived by the regional offices

The perspectives of the educational leaders indicated several key challenges of higher secondary education in their areas can be summarized as follows:

Lack of Pedagogical Training: Most teachers, principals, and vice-principals lack pedagogical training, hindering effective teaching-learning practices. Even those who receive training often struggle to apply the skills learned in their classrooms due to various factors, including irrelevant training content and inadequate support from administration.

Shortage of Manpower for Policy Implementation: While there are well-formulated policies for monitoring, the implementation of these policies faces challenges due to a shortage of manpower. This hampers efforts to effectively monitor and address issues in higher secondary education.

Lengthy Recruitment Process: The recruitment process for hiring manpower, including teachers and administrative staff, is lengthy and time-consuming. Delays in recruitment adversely affect the functioning of higher secondary institutions and administrative offices.

Lack of Training for Administrative Staff: Administrative staff working in higher secondary education offices lack sufficient training and skills, leading to inefficiencies in carrying out their duties. There is a need to provide training to enhance their capabilities in areas such as basic computer skills, monitoring and supervision of academic activities, quality assurance of the education institutes and regional office.

Absence of Refresher Training for Teachers: There is a significant shortage of refresher training for college-level teachers, unlike the regular training provided at the primary level. Refresher training is essential for updating teachers' skills and knowledge, particularly in adapting to new educational practices and methodologies.

Inequities in Promotion Criteria: Inconsistencies in promotion criteria, particularly between private and degree college teachers, pose challenges and lead to grievances among staff members. Standardizing promotion criteria and ensuring equity in career advancement are essential for maintaining morale and professionalism among teachers.

Administrative Overload and Challenges: The administrative workload at the higher secondary level is significant, with insufficient manpower to handle administrative activities effectively. Decentralization of manpower and creation of new administrative posts are needed to address this challenge and improve administrative efficiency.
Barriers to Immediate Action and Investigation: Various barriers, such as bureaucratic processes and challenges in conducting investigations, hinder the timely resolution of issues and impede the effective functioning of educational institutions and administrative offices.

In summary, the key challenges in higher secondary education include the lack of pedagogical training among teachers, shortages of manpower for policy implementation and administrative duties, lengthy recruitment processes, inadequacies in training for administrative staff, absence of refresher training for teachers, inequities in promotion criteria, and barriers to immediate action and investigation. Addressing these challenges requires concerted efforts to enhance training opportunities, streamline administrative processes, and improve policy implementation mechanisms.

3.6 Scope for introducing ELP (Engaged Learning Pedagogy) based training

3.6.1 Potential training contents for education leaders and officials

Considering the findings from the study regarding the professional development needs of teachers, it's essential to design training contents for institute heads and education officials responsible for academic supervision, mentoring, monitoring, evaluation, and providing academic support to teachers. Here are some suggested training contents tailored to meet their roles and responsibilities:

Table 33: Training areas for education leaders and teacher educators

Training areas for the Principal/VP	**Training areas for the Regional Officials**	**Training areas for the HSTTI Officials**
•Teacher mentoring and supportive supervision •Educational leadership and management skills •Effective communication and stakeholder engagement •Promoting inclusive and equitable learning environments •Understanding pedagogical practices •Understanding the curriculum as an educational leader •Promoting professional growth and continuous learning	•Understanding educational policies and guidelines •Monitoring and evaluation techniques •Educational leadership and management skills •Teacher training and development •Technology integration in education •Promoting professional growth and continuous learning •Building effective relationships and communication skills	•Subject-based pedagogical content knowledge •Educational technology •Teacher mentoring and academic supervision •Educational leadership skills •Promoting inclusive and equitable learning environment

By incorporating these training contents, institute heads and education officials can enhance their capacity to support and empower teachers, ultimately contributing to the improvement of teaching and learning outcomes in the educational institutions they oversee.

3.6.2 Training modality, duration and approach for education leaders and officials

Online Training:

- Utilize online platforms for virtual workshops, and self-paced courses
- Offer access to online resources and facilitate virtual discussions to encourage interaction and knowledge sharing

Blended Approach:

- Conduct virtual lectures or presentations followed by in-person discussions or workshops.

In-House Training:

- Organize training sessions within the premises of educational institutions or near to the college, making it convenient for participants to attend.

Short-Term Training:

- Offer short-duration training programs focusing on specific topics or skills relevant to the roles of principals, vice-principals, and educational officials.
- Provide hands-on practical training sessions that allow participants to apply newly acquired knowledge and skills immediately.

3.7 Voices from students

In higher secondary level education in Bangladesh, students encounter significant challenges due to teachers' poor performance. Firstly, teachers often assign reading tasks or instruct students to read books without providing sufficient explanation, leading to confusion and limited comprehension. As one student mentioned-

> "*Sometimes, the teacher takes the class, but we cannot understand anything. Teachers should ensure that all students understand the class or not. The teacher does not monitor it. It would be better if the teacher teaches through discussion method or group work instead of lecture method.*" – FGD4SR3

Secondly, inadequate formative assessment and feedback impede students' ability to track progress and improve. Additionally, challenges arise from class schedule issues and ineffective time management, disrupting the learning process. Moreover, lack of inclusive teaching practices fails to address diverse student needs, exacerbating disparities.

> "*Many times, the teacher is paying more attention to only a few... Others who are mediocre students are being deprived...*" – FGD1SR6

Furthermore, large class sizes and ineffective classroom management contribute to disruptions and chaos, hindering effective learning. Lastly, insufficient teacher expertise and preparation further undermine the delivery of quality lessons, impeding student academic growth. Addressing these challenges requires comprehensive support and professional development initiatives to enhance teaching effectiveness and improve student outcomes.

3.7.1 Key challenges reported by the students

Based on the provided data from higher secondary students, the key challenges reported in their teaching-learning process can be organized thematically as follows:

Teaching Methodology and Engagement

Overemphasis on Lecture Method:

- Many students expressed dissatisfaction with the way teachers present subjects, such as reading monotonously without breaks or using a lecture-based method extensively. They prefer more interactive and engaging teaching methods.

- Many students' express dissatisfaction with the predominant use of the lecture method by teachers.
- They find lectures boring and struggle to stay focused for extended periods.
- Students desire more interactive and engaging teaching methods, such as discussions, group work, and multimedia presentations.

Insufficient Explanation and Understanding:

- Students report challenges when teachers move too quickly through topics without thoroughly explaining concepts.
- They struggle when teachers expect them to solve problems without providing adequate explanations or examples beforehand.

Lack of diverse teaching-learning techniques for diverse learners

- Students feel frustrated by teachers' lack of individualized attention and support, especially for those who need extra help or have different learning needs.
- They suggest that teachers should vary their teaching methods to accommodate diverse learning styles.

Lack of Resources and Practical Learning

Lack of Practical Classes: Students highlighted limited or the absence of practical classes, especially in subjects like ICT and science, which they believe are crucial for better understanding and learning.

- Students' express dissatisfaction with the lack of practical or hands-on learning opportunities, particularly in subjects like ICT and science.
- They highlight the absence of access to necessary materials and equipment for practical experiments and activities.

Inadequate Use of Technology:

- While some students desire more projector-based or multimedia classes, they report inconsistent access to technology in the classroom.
- They feel hindered when technical issues disrupt learning activities, such as unstable projectors or lack of computer access.

Insufficient Class Amenities: Issues such as inadequate classroom space, lack of multimedia projector usage, poor-quality teaching equipment like markers, and problems with the sound system were highlighted by students as hindrances to effective learning.

Classroom Environment and Discipline

Classroom Disturbances:

- Students find it challenging to concentrate and learn effectively in overcrowded classrooms with disruptive behavior.
- They express dissatisfaction with the lack of control by teachers over noise and distractions during class.

Ineffective Discipline Methods:

- Students criticize disciplinary actions taken by teachers, such as confiscating ID cards or assigning unnecessary homework as punishments.
- They suggest that teachers should employ more flexible and student-centered approaches to discipline.

Teacher Behavior and Attitude: Students mentioned instances of teachers using inappropriate language, showing anger towards students, or expressing disinterest in addressing students' questions. This negatively impacts the classroom environment and student-teacher relationship.

Time Management: Challenges related to time constraints, including lengthy class durations, insufficient break times, and difficulties in managing many students, were also mentioned by students.

Assessment and Feedback

Lack of Feedback and Assessment:

- Students feel that they do not receive sufficient feedback on their academic performance, limiting their opportunities for improvement.
- They desire more frequent and informative assessments to evaluate their learning progress.

Subject-Specific Challenges

Difficulty Understanding Topics: Students struggle with certain subjects, such as English or higher-level math and science topics, due to inadequate foundational knowledge or teaching methods.

Disengagement and Demotivation: Students feel demotivated when teachers ignore their questions, prioritize certain students over others, or fail to create an inclusive and supportive classroom environment.

Challenges with Specific Subjects: Some students express specific challenges with certain subjects, such as economics or ICT, due to teaching methods, lack of practical instruction, or difficulty understanding concepts.

Infrastructure and Logistics

Limited Class Time and Irregular Class Schedule:

- Students reported irregularities in class schedules, which disrupt their learning process. Factors contributing to this include rescheduling due to events like elections, shortages of classrooms, and teachers' involvement in private tuition.
- Students expressed dissatisfaction with afternoon classes, which they find less conducive to learning and more prone to distractions and fatigue.

Inadequate Infrastructure and Equipment: Students highlight issues with infrastructure maintenance, such as malfunctioning projectors or insufficient computers, which hinder their learning experience.

Infrastructure Issues: Problems like load-shedding affecting the functioning of smart boards, the need for a generator, and malfunctions in the sound system were highlighted as infrastructure challenges impacting the learning environment.

3.7.2 Students' preference in teaching-learning activities

Students expressed preferences for teachers who employ diverse teaching-learning methods to engage them actively in learning activities. They appreciate the use of real-life examples to contextualize concepts or theories, enhancing understanding and relevance. Additionally, students value the integration of technology and digital resources into lessons, making content presentation more dynamic and accessible. Moreover, teachers' encouragement and support foster a positive learning environment, motivating students to excel. Finally, effective communication, friendly demeanor, gender sensitivity, and adept classroom management techniques contribute to a conducive and respectful learning atmosphere, enhancing overall student satisfaction and academic success.

Activities students prefer in their teaching-learning experiences:

Based on the data provided by the higher secondary students, the activities students prefer in their teaching-learning process is the use of interactive and engaging teaching methods. Here are the key activities students reported:

Use of Multimedia Resources: Students appreciate the use of multimedia resources like educational videos and presentations. They find it helpful and interactive, making learning more engaging and interesting (P-6).

Real-Life Examples and Practical Applications: Teachers incorporating real-life examples and practical applications into their teaching are highly valued by students. This approach helps them relate to the content better and understand complex topics more easily (R-04, R-03, P-2, F1).

Interactive Lectures and Discussions: Students enjoy participatory-based teaching methods, where they are actively involved in discussions and activities related to the lesson. This interactive approach keeps them engaged and helps them grasp the content more effectively (R-07, P-7, P3).

Encouragement and Supportive Environment: Teachers who create a supportive and encouraging environment in the classroom are appreciated by students. They feel comfortable asking questions, participating in discussions, and seeking help when needed (R-1, R-4, R-6).

Hands-On Learning and Practical Work: Students find hands-on learning experiences and practical work highly beneficial. It helps them understand theoretical concepts better and enhances their learning experience (P-6, P5).

Variety in Teaching Methods: Teachers who employ a variety of teaching methods, such as storytelling, group work, and multimedia presentations, are favored by students. This variety keeps the classes interesting and caters to different learning styles (P-2, R6, R5).

Clear Communication and Explanation: Teachers who communicate clearly and explain concepts thoroughly are well-liked by students. Clear explanations help students understand the material more easily and build confidence in their learning (R-1, R-5, R-3).

Regular Classes and Consistency: Students appreciate regular classes and consistent teaching schedules, as it helps maintain continuity in their education and prevents interruptions in their studies (P-8, R-11).

In summary, the key strength reported by the higher secondary students is the use of interactive, engaging, and varied teaching methods that incorporate real-life examples, encourage participation, and provide support for student learning.

4. RECOMMENDATIONS

Based on the analysis of the preferences and needs of higher secondary education level teachers, institute heads, and education officials, the following recommendations can be drawn for training formulation:

Diverse Training Modalities: Offer a variety of training modalities, including in-person, online, blended, and short-term residential options, to accommodate the diverse preferences and needs of college teachers and leaders. The training program design takes into account flexibility and

accommodation, particularly in light of the shortage of teachers in colleges and the academic and familial commitments they have.

Tailored Content Development: According to 21.9% teachers, the most significant motivator for teachers to attend professional development training is to improve students' learning and psychological outcomes. Therefore, develop training content that addresses the specific needs of teachers, institute heads, and education officials, such as diversified pedagogical methods, pedagogical content knowledge, understanding curriculum directions, and academic leadership and mentoring skills.

Incorporation of gender-inclusive pedagogy in training approach. Although the survey identified gender awareness and inclusivity in a limited number of prominent colleges, it seems that a significant proportion of teachers lack training in gender and inclusive education. Therefore, it is recommended to incorporate a gender-sensitive strategy when formulating and conducting training. This approach should take into account the specific problems encountered by female instructors, such as family obligations and travel limitations, as well as the diverse academic backgrounds and regions from which teachers come. The training content may also incorporate gender and inclusive pedagogical know-how so that teachers can address gender sensitive and special educational need of their students.

Accessible and Flexible Training Delivery: Ensure that training programs are accessible and flexible, with options for remote participation, asynchronous learning, and accommodations for participants with disabilities or other special needs, to promote inclusivity and equity in accessing professional development opportunities.

Culturally and Linguistically Responsive Approaches: Incorporate culturally and linguistically responsive approaches into training content and delivery, including the use of multilingual resources, culturally relevant examples, and sensitivity to diverse cultural practices and beliefs.

Continuous Professional Development: Establish regular and consistent training opportunities, refreshers' training, frequent sessions throughout the year, to ensure continuous professional development and retention of knowledge and skills over time.

Collaborative Learning Communities*:* Foster collaborative learning communities where teachers, institute heads, and education officials can engage in peer-to-peer learning, mentorship, coaching and knowledge sharing, promoting a culture of collaboration and mutual support. Online (e.g., Teachers Portal) and in-person platforms and modalities can be used for creating professional learning community for teachers.

Integration of Technology*:* Integrate technology into training programs to enhance accessibility, engagement, and effectiveness. This includes leveraging online platforms including learning management system for remote learning, digital resources for content delivery, and data analytics for monitoring and evaluation purposes.

Institutional Support and Infrastructure*:* Provide adequate institutional support and infrastructure, such as training facilities, technological resources, and residential accommodations, to facilitate effective training delivery and participant engagement.

Stakeholder Engagement and Collaboration: Foster collaboration and partnership among stakeholders, including educational institutions, government agencies to enhance the quality and relevance of training programs.

Inclusive Leadership Development*:* Provide leadership development opportunities that are inclusive and accessible to all, with strategies for promoting diversity, equity, and inclusion in educational leadership roles at all levels.

Monitoring and Evaluation Mechanisms:

The results of the survey consistently indicated that there is a deficiency in training among educational leadership personnel at both the regional educational administration and college levels (principals and vice-principals) in order to effectively support teacher with academic and pedagogical guidance. It is suggested to provide educational leaders with an experiential training program complemented by robust monitoring and evaluation systems to substantiate and assess the efficacy of the teacher training programs in relation to educational outcomes and instruction. This may include the procedure of collecting feedback from participants, conducting subsequent assessments, and implementing required adjustments to training methodologies.

Sustainable Funding and Resource Allocation*:* Ensure sustainable funding and resource allocation for training initiatives, prioritizing investments in professional development as a key driver of educational quality and excellence.

Education authorities can design and deliver effective training programs following recommendations that empower teachers, institute heads, and education officials to enhance teaching and learning outcomes at the higher secondary education level in Bangladesh.

5. CONCLUSION

In conclusion, the effective design and implementation of training programs for educational professionals in Bangladesh must prioritize accessibility, relevance, and inclusivity. By locating training venues near participants' institutes and offering a diverse array of training topics, including pedagogical skills, technology integration, and leadership development, educators can enhance their competencies and effectiveness in the classroom. Moreover, fostering a supportive and inclusive learning environment through leadership and mentoring training promotes diversity, equity, and inclusion in educational institutions. Additionally, incorporating gender-sensitive and culturally responsive approaches ensures that training programs address the diverse needs of participants and promote gender equality and social inclusion. Finally, offering flexible training modalities, such as blended and online formats, ensures accessibility and accommodates the diverse schedules and learning preferences of participants, ultimately contributing to the overall improvement of the education system in Bangladesh.

ANNEX

Table 34: Geographical distribution of College Samples

Zone	Plain Land	Char	Haor/ Baor	Tea Garden	Hill	costal	Total
Dhaka	6						6
Rangpur	4	1					5
Chattogram	2				1	1	4
Rajshahi	4	1					5
Khulna	4					1	5
Mymensingh	2	1	2				5
Barishal	1					4	5
Sylhet	1		2	2			5
Cumilla	5						5
Total	**29**	**3**	**4**	**2**	**1**	**6**	**45**

Table 35: Sampling of the colleges

Zone	District	Upazila	Location	Types	Colleges	Feature	Education Level	MPO/ Non-MPO
Rangpur Zone	Rangpur	Rangpur	Urban	Combined	Rangpur Govt. College	Plain land	Masters/Public	Govt.
	Rangpur	Mithapukur	Rural	Combined	Dhaper Hat Monikrisno Sen Degree College	Plain land	Degree/Private	MPO
	Nilphamari	Saidpur	Urban	Combined	Saidpur Govt. Science College, Nilphamari	Plain land	Degree/Private	Govt.
	Rangpur	Taraganj	Rural	Combined	Taraganj Degree College	Plain land	Degree	MPO
	Kurigram	Rajarhat	Urban	Girls	Rajarhat Adarsha Mohila Degree College	Char land	Degree	MPO
Cumilla Zone	Cumillla	Cumillla Sadar	Urban	Girls	Comilla Government Women's College	Plain land	Masters	Govt.
	Noakhali	Chawmuhani	Rural	Combined	Chawmuhani Govt. S.A College	Plain land	Masters	Govt.
		Sadar	Urban	Combined	Sonapur College	Plain land	Honours	MPO
	Feni	Feni Sadar	Urban	Combined	Rampur Nasir Memorial College	Plain land	Degree	MPO
		Daganbhuiyan	Rural	Combined	Chowdhury Hat College	Plain land	Degree	MPO

Sylhet Zone	Sylhet	Sylhet Sadar	Urban	Girls	Sylhet Govt. Women's College	Plain land	Masters	Govt.
	Moulvibazar	Rajnagar	Rural	Combined	Rajnagar Degree College	Tea Garden	Degree	MPO
		Borolekha	Rural	Combined	Barlekha Degree College	Tea Garden	Degree	MPO
	Sunamgonj	Chhatak	Rural	Combined	Chhatak Mahabiddyalaya	Haor/Baor	HSC/Private	MPO
		Jagannathpur	Rural	Combined	Ranigonj College	Haor/Baor	HSC/Private	MPO
Rajshahi Zone	Rajshahi	Rajshahi Sadar	Urban	Combined	Rajshahi College	Plain land	Masters	Govt.
		Poba	Rural	Combined	Adarsha Degree College	Plain land	Degree	MPO
		Puthiya	Rural	Girls	Puthia Islamia Mahila Degree College	Plain land	Degree	MPO
	Chapainawabganj	Chapanawabganj Sadar	Urban	Combined	Namosankar Bati Degree College	Char land	Degree	MPO
		Nachole	Rural	Combined	Shahid Smriti College Hat Bakoil	Plain land	Honours	MPO
Khulna Zone	khulna	Khulna Sadar	Urban	Girls	Khulna Govt. Girls' College	Plain land	Masters	Govt.
		Batiaghata	Rural	Combined	Batiaghata Mahavidyala	Coastal	HSC	MPO
	Jashore	Keshabpur	Rural	Combined	Kapatackha Shammilani Degree College	Plain land	Degree	MPO
	Bagerhat	Fakirhat	Rural	Combined	Kazi Azhar Ali College	Plain land	Honours	MPO
		Sadar	Urban	Combined	Khanjahan Ali Degree College	Plain land	Degree	MPO
Barisal Zone	Barisal	Barisal Sadar	Urban	Girls	Barisal Govt. Womens College	Plain land	Masters	Govt.
		Bakergan j	Rural	Girls	Kalshkathi College	Coastal	Degree	MPO
	Patuakhali	Dumki	Rural	Combined	Govt. Janata College	Coastal	Honors	
	Jhalakathi	Sadar	Urban	Combined	Sher-E-Bangla Fazlul Haque Degree College	Coastal	Degree	MPO
		Nalchity	Rural	Combined	Dapdapia Union Degree College	Coastal	Degree	MPO
Chattagram Zone	Chattagram	Chattagram Sadar	Urban	Girls	Agrabad Mohila College	Plain land	Masters	MPO
		Fatikchhari	Rural	Combined	Narayanhat Adarsha Degree College	Plain land	Degree	MPO

	Bandarban	Sadar	Urban	Combined	Govt. Bandarban College	Hill Tract	HSC/Public	Govt.
	Cox'sBazar	Cox'sBazar	Urban	Combined	Cox's Bazar D.C College	Coastal	HSC/Private	Non-MPO
Dhaka Zone	Dhaka	Mohamadpur	Urban	Girls	Lalmatia Govt. Mohila College	Plain land	Honors	Govt.
		Dhanmondi	Urban	Boys	Dhaka College	Plain land	Masters	Govt.
		Gopalgonj	Rural	Girls	Sheikh Fazilatunnesa Govt. Mohila College	Plain land	Honors	Govt.
		Narsingdi	Rural	Combined	Abdul Kadir Mollah City College	Plain land	HSC/Private	Non-MPO
	Manikgonj	Manikgonj Sadar	Rural	Combined	Rajibpur Adarsha College	Plain land	HSC/Private	MPO
	Gazipur	Kaliakair	Urban	Combined	Pubail Adarsha Degree College	Plain land	Honors	MPO
Mymensingh Zone	Mymensingh	Mymensingh Sadar	Urban	Girls	Mymensingh Mohila College	Plain land	Degree	MPO
		Trishal	Urban	Combined	Govt. Nazrul College Trishal	Plain land	Honors	Govt.
	Netrokona	Netrokona Sadar	Urban	Combined	Shah Sultan (r) Degree College	Haor/Baor	Degree	MPO
		Barhatta	Rural	Combined	Barhatta College	Haor/Baor	Degree	MPO
	Sherpur	Nakla	Rural	Combined	Haji Jalmamud Degree Collage	Char land	Degree	MPO

Table 36: Number of Participants by Division and Method of Data Collection

Data Collection Area	Methods of Data Collection					
	College Information	Teacher Survey (Language, Humanities, commerce, Science, and ICT)	Classroom Observation (Language, Humanities, commerce, Science, and ICT)	IDIs of the Classroom Teachers	IDIs of the Participants with Leadership Role	FGDs with students and College Teachers
Dhaka City/ Division (national level)	6	67	18 (3X6)	18 (3X6)	Training Specialist, NAEM-01 Director (Training), DSHE- 01 Director (Planning and Development)- 01 Director, Regional Office- 01 Senior Specialist, NCTB- 01 Assistant Director, Regional Office (DD/AD)- 01 Chairman/Controller, BISE- 01 BEDU- 02 Principal & Vice-principal - 12	Teachers- 02 Students-03
Barisal	5	51	15 (3x5)	15 (3x5)	Director, HSTTI- 01 DD/AD, HSTTI-01 Director, Regional Office- 01 DD/Assistant Director, Regional Office- 01 Principal & Vice-principal - 10	Teachers- 04 Students-03
Rajshahi	5	50	15 (3x5)	15 (3x5)	Director, HSTTI- 01 DD/AD, HSTTI-01 Director, Regional Office- 01 DD/Assistant Director, Regional Office- 01 Principal & Vice-principal - 10	Teachers- 03 Students-03
Mymensingh	5	45	15 (3x5)	15 (3x5)	Director, HSTTI- 01 DD/AD, HSTTI-01 Director, Regional Office- 01 DD/Assistant Director, Regional Office- 01 Principal & Vice-principal - 10	Teachers- 03 Students-03
Chattogram			12 (3x4)	12 (3x4)	Director, Regional Office- 01 DD/Assistant Director, Regional Office- 01	Teachers- 02 Students-02

	4	42			Principal & Vice-principal - 07	
Khulna	5	51	14 (3x5)	15 (3x5)	Director, HSTTI- 01 DD/AD, HSTTI-01 Director, Regional Office- 00 DD/Assistant Director, Regional Office- 00 Principal & Vice-principal - 9	Teachers- 04 Students-05
Sylhet	5	45	15 (3x5)	15 (3x5)	Director, Regional Office- 01 DD/Assistant Director, Regional Office- 01 Principal & Vice-principal - 8	Teachers- 01 Students-01
Rangpur	5	65	15 (3x5)	15 (3x5)	Director, Regional Office- 01 DD/Assistant Director, Regional Office- 01 Principal/ Vice-principal- 8	Teachers- 03 Students-05
Cumilla	5	49	12 (3x5)	15 (3x5)	Director, HSTTI- 01 DD/AD, HSTTI-01 Director, Regional Office- 01 DD/Assistant Director, Regional Office- 01 Principal & Vice-principal - 10	Teachers- 03 Students-03
Total	**45**	**465**	**131**	**135**	**117**	**Total FGD 53** (Participants= 353)

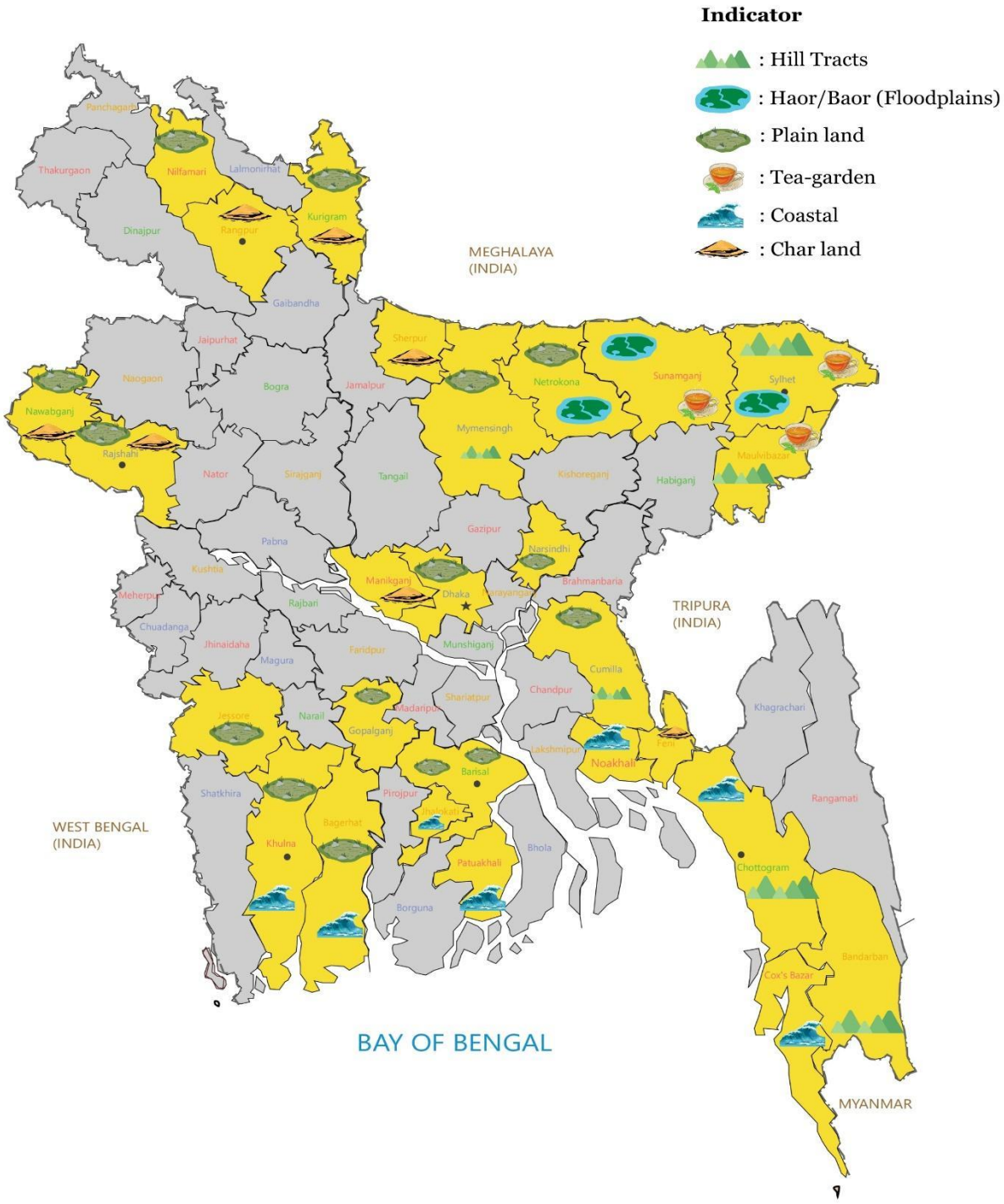

Figure 23: Geographical Distribution of Samples

Table 37: Teachers digital proficiency by college type

Types of digital proficiency	College types of the respondents								
	Government (n=215)		MPO (n=226)		Non-MPO (n=21)		Total (N=462)		Have no skill (%)
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Word Processing i.e. MS Word, Google Doc etc.	3.31	1.66	2.44	1.65	3.38	1.56	2.89	1.70	3.2
Multimedia Presentation i.e. MS PowerPoint, Google Slides	3.09	1.60	2.39	1.60	3.14	1.49	2.75	1.63	4.3
Email and others	3.40	1.58	2.71	1.65	4.05	1.16	3.09	1.64	3.5
Social Media	3.70	1.46	3.22	1.66	4.05	1.12	3.48	1.57	3.2
Video Conferencing (Zoom, google Meet, teams.)	3.13	1.58	2.58	1.64	3.81	1.33	2.89	1.63	4.8
Learning Management Systems (Google Classroom, Muktopaath, etc.)	2.34	1.55	1.93	1.45	2.62	1.32	2.16	1.50	6.7
Confidence in using those tools in teaching-learning activities	3.26	1.50	2.66	1.62	3.76	1.30	2.99	1.59	3.7

Table 38: Teachers' familiarity with ICT/digital skills by sex

Percentage people who are not familiar with any of them	Sex of the respondents		
	Male (n=324)	Female (n=141)	Total (N=465)
Not familiar with any of the skill (in %)	1.2	2.8	1.7

Table 39: Teachers' familiarity with ICT/digital skills by college type

Percentage people who are not familiar with any of them	Institute Type of the Respondents			
	Government (n=217)	MPO (n=227)	Non-MPO (n=21)	Total (N=465)
Not familiar with any of the skill (in %)	1.4	2.2	0	1.7

Table 40: Teachers' need for professional development by institution type, gender and location

Types of training	Institute Type			Gender		Location		Total (N=465)
	Gov. (n=217)	MPO (n=227)	Non-MPO (n=21)	Male (n=321)	Female (n-144)	Urban (n=272)	Rural (n=193)	
Teaching and/or pedagogical skills	32.9	33.9	33.3	34.7	30.5	32.7	34.4	33.4
Subject-specific pedagogical content knowledge	18.8	18.8	14.3	17.0	22.0	21.2	14.8	18.6
Ensuring respectful and equitable working environment	14.6	13.8	4.8	12.0	17.7	12.6	15.3	13.8
Building relationship with learners	7.5	11.6	19.0	11.4	7.1	9.7	10.6	10.0
Classroom/Learner management/engagement	8.5	8.9	4.8	8.2	9.2	7.8	9.5	8.5

Table 41: Digital/ICT proficiency

Types of digital proficiency	Type of the respondents							
	Educational Leaders (n=84)		Education Officials (n=15)		Teacher Trainers (n=10)		Total (N=109)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Microsoft Word	2.25	1.22	3.27	1.49	3.50	1.18	2.52	1.34
Microsoft PowerPoint	2.05	1.08	3.27	1.67	3.40	1.17	2.37	1.30
Microsoft Excel	1.87	1.09	2.40	1.40	2.70	1.25	2.03	1.18
Google Form	1.66	1.04	2.73	1.71	2.60	1.35	1.91	1.26
Google Docs	1.45	0.87	2.60	1.60	2.60	1.65	1.73	1.19
Use of Facebook group for resource sharing	2.43	1.33	3.60	1.30	3.70	0.95	2.73	1.39
Use virtual lab or simulation	1.63	1.08	2.33	1.40	2.80	1.48	1.85	1.23
Integration of multimedia	2.01	1.14	3.00	1.41	3.60	1.50	2.32	1.33
Google Classroom	1.55	0.90	2.60	1.50	3.20	1.55	1.87	1.21
Use of Google Meet or Zoom	1.71	1.09	2.93	1.39	2.90	0.99	2.01	1.24

Table 42: Professional development needs of educational leaders and officials

Principal/ Vice-Principal	Education Officials
Understanding Pedagogical Practices ● Effective instructional strategies and methodologies ● Differentiated instruction techniques to cater to diverse learner needs ● Strategies for promoting active learning and student engagement ● Incorporating technology in teaching and learning processes	**Understanding Educational Policies and Guidelines** ● Familiarization with national and regional educational policies, regulations, and guidelines specific to higher secondary education institutes. ● Understanding the roles and responsibilities of education officials in implementing and enforcing educational policies at the higher secondary level.
Curriculum and subject specific content knowledge ● Deepening understanding of subject matter across various disciplines ● Ensuring alignment of curriculum with educational standards and objectives ● Understanding the process of curriculum implementation ● Design curriculim implementation plan and assessing progress ● Supporting teachers in aligning instructional practices with curriculum goals	**Teacher Training and Development** ● Effective methods for teacher training, professional development, and capacity-building specific to higher secondary education institutes. ● Implementing mentoring and coaching programs to support teacher growth and enhance teaching quality in higher secondary institutions.
Promoting Inclusive and Equitable Learning Environments ● Strategies for fostering diversity and inclusion in educational settings ● Creating a positive school culture that values respect and equity ● Addressing biases and stereotypes in educational practices	**Technology Integration in Education** ● Leveraging technology for teaching, learning, and administrative purposes ● Integrating digital tools and resources into the curriculum to enhance learning outcomes.
Teacher Mentoring and Support ● Identifying professional development needs and designing tailored support plans ● Strategies for providing effective mentoring and coaching to teachers ● Providing constructive feedback and guidance to enhance teacher performance	**Monitoring and Evaluation Techniques** ● Understanding the principles and practices of quality assurance in higher secondary education. ● Developing monitoring and evaluation frameworks to assess the effectiveness of educational programs. ● Implementing systems for regular school inspections, classroom observations, and performance reviews.
Promoting Professional Growth and Continuous Learning ● Creating opportunities for ongoing professional development for teachers and staff ● Encouraging reflective practices and self-assessment among educators	**Promoting Professional Growth and Continuous Learning** ● Creating opportunities for ongoing professional development for teachers, Principal, Vice-principals and staff ● Encouraging reflective practices and self-assessment among educators

• Establishing systems for recognizing and rewarding excellence in teaching	• Establishing systems for recognizing and rewarding excellence in teaching and institutional development
Efefctive Communication and Stakeholder Engagement • Effective communication strategies for providing feedback and guidance to teachers • Building partnerships with parents, community members, and other stakeholders • Conflict resolution and mediation techniques for addressing interpersonal issues	**Building Effective Relationships and Communication Skills** • Building effective partnerships with higher secondary educational institutes, government agencies, community organizations, and industry stakeholders. • Communication skills for engaging stakeholders and fostering collaboration to address educational challenges and achieve common goals in higher secondary education.
Leadership and Management Skills • Developing leadership competencies for effective institutional management and administration • Promoting a culture of collaboration, teamwork, and shared leadership • Strategic planning and goal-setting for institutional improvement initiatives	**Leadership and Management Skills** • Developing leadership competencies for effective management of higher secondary educational institutions and programs. • Strategic planning, organizational development, and change management in the higher secondary education context.

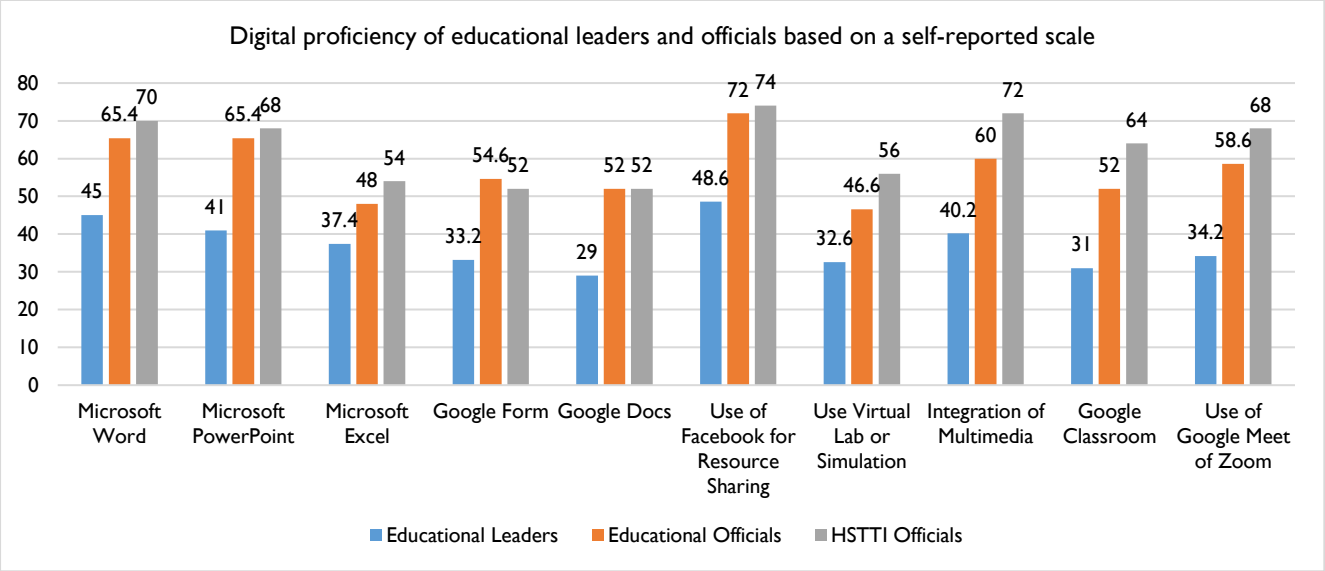

Figure 24: Digital proficiency of educational leaders and officials

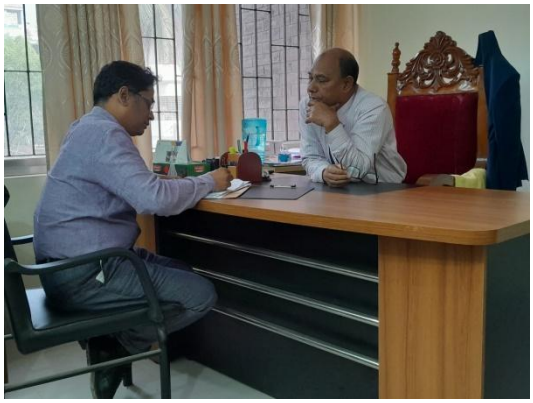

Figure 25: KII with a Principal

Figure 26: Focus Group Discussion with Teachers and Students

Figure 27: Facilities for students with disability