NAEM JOURNAL
ISSN 1997-4248
Volume 16 Issue 01
Serial 31

Implementation Status of the Master Plan for ICT in Education for Secondary Teachers' Professional Development

S M Kamruddin Ropum[1]
Muhammad Monirul Islam[2]
Md Luthfor Rahman[3]

Abstract

Master Plan for ICT in Education is one of the key policy documents of Government of Bangladesh (GoB) to integrate ICT in education in Bangladesh. The study object was to analyze the teacher development status in Bangladesh in comparison to Master Plan for ICT in Education. A qualitative reserch approach was followed throughout the study. Forty respondents from 3 categories– planning and development, implementation, and beneficiaries were consulted during data collection through interview and FGD following purposive sampling technique. Both the interview and FGD guideline were focused on the planned activities regarding teacher development mentioned in the Master Plan for ICT in Education, and grouped in 8 different themes. It was found that ICT has been integrated in the teacher training curriculum mostly as facilitation tool, however, lack of Technological Pedagogical and Content Knowledge (TPACK) and skill of both the trainers and teachers is one of the key challenges to implement this effectively. On the other hand, more than 1000 master trainers developed though it seems not enough to train all the secondary teachers within the planned time. Moreover, several online courses have been introduced though lack of linkage between the courses and benefits, and recognition were revealed as key challenges. Since monthly installment basis laptop purchase facilities are introduced for teachers, most of them do not know about the facilities. Based on the findings, training on TPACK needs to introduce for trainers and teachers. Online courses should be developed through proper need analysis. Moreover, online courses for teachers would be developed partnering with academia and training providers. Benefits of online courses should be introduced to teachers to motivate them in online courses. Finally, campaign, promotional activities and official notice could be arranged for teachers to aware them about online courses, benefits and loan facilities.

Keywords: Teacher Training, ICT in Education, Master Plan for ICT in Education, Online Course, E-Learning, Distance Education

[1] Manager, Program Operations, EGE, Save the Children
[2] Assistant Professor, Education, Govt. Teacher's Training College, Cumilla
[3] Deputy Director, Research and Documentation, NAEM

Introduction

The Master Plan for ICT in Education illustrates the overall plan for integrating ICT in education sector from pre-primary to higher education which included teachers' professional development as well. Teachers' professional development is a key activity to ensure quality education. Recent technological innovations, pandemic situation and skills requirement for 21st century demand integration of ICT in teacher development process also. Moreover, Pelgrum (2001) mentioned that the success of educational innovations depends largely on the skills and knowledge of teachers. Teachers' lack of knowledge and skills is one of the main hindrances to the use of ICT in education both for the developed and underdeveloped countries (Mamun, & Tapan, 2009). Integrating technology in the curriculum requires teachers' knowledge of the subject area, understanding of how students learn and level of technical expertise (Morgan 1996). Considaring these issues, the Master Plan was formulated in 2012 with some actions for developing teachers so that they can integrate ICT in teaching-learning process targeted to achieve in 10 years (by 2021).

Statement of the Problem

Since 2021 is knocking the door, it is important to know to what extend the planned activities are done and achieved, and what initiatives are need to be taken to achieve rest of the target. In this context, the study has taken to explore the implementation status of the secondary teachers' professional development activities in comparison to the Master Plan for ICT in Education.

Rationale of the Study

In education, the term professional development may be used in reference to a wide variety of specialized training, formal education, or advanced professional learning intended to help administrators, teachers, and other educators improve their professional knowledge, competence, skill, and effectiveness. The top qualities of a great teacher are ability to develop relationships with their students, knowledge of learners, dedication to teaching, engaging students in learning. On the other hand, developing a good number of professionally skilled teachers is one of the indicators of the Sustainable Development Goal 4 - Quality Education.

For a country like Bangladesh, it will be a huge challenge to develop huge number of teachers from secondary level by face to face training. In this situation, ICT can play a huge role for developing teachers' professional skills. The government of Bangladesh introduced a Master Plan for ICT in Education in purpose of getting the fruits of ICT through incorporating technology in classroom teaching-learning process as well as professional development for different level of teaching. Moreover, it is expected that the Master Plan will empower teachers and create an enjoyable learning environment in schools. The study will explore the picture of implementation status of this Master Plan regarding professional development of teachers in secondary level.

The findings of the study may reveal a clear picture of the status of the professional development of teachers in secondary level by using ICT in various policies, which can be used for preparing an effective plan for integrating ICT in education. The study will investigate the challenges faced by the authorities in implementing the master plan, which might be useful for taking proper initiatives to face and mitigate the challenges. The result of the study may help the

educational stakeholders to understand the importance of integrating ICT in teacher development initiatives. For this, it can be easy to plan and implement any further ICT initiatives related to teachers' professional development.

The study might be helpful for designing any further activities on developing teachers. Moreover, the findings may be supportive to the policy makers that they may think of including realistic activities in teacher development. As a whole, the study may be convenient to the policy makers to rethink about different concerning factors of the implementation of Master Plan for ICT in Education specifically on professional development for secondary level teachers in Bangladesh.

Objectives of the Study

The general objective of this study is to analyze the implementation status of secondary teachers' professional development in comparison to the Master Plan for ICT in Education in Bangladesh. The specific objectives of the study are to:

explore Implementation status of the activities for secondary teachers' professional development in comparison to proposal of the Master Plan for ICT in Education; and

analyze the challenges behind the implementation of the activities proposed in the Master Plan for ICT in Education for secondary teachers' professional development.

Limitations of the Study

The study focuses on the implementation status of the teacher development activities planned in the Master Plan for ICT in Education. The study has not worked on the impact level changes to find the result of the planned activities since the duration of the activities is not end yet. Moreover, the study covered only 4 districts and 40 respondents which cannot generalize the findings. The study could cover more respondents from different stakeholders if the resource and time permitted.

Methodology of the Study

The study was conducted in between July 2019 and June 2020 period in Bangladesh. The study area mainly focused on exploring status of the secondary school teachers' professional development has per the planned activities in the Master Plan for ICT in Education. To explore this, the study will follow the qualitative approach of research method. Detail study methodology is given below:

Sampling

Since the study mainly focuses on the implementation status of the Master Plan for ICT in Education for secondary teachers' professional development, secondary school teachers were the primary population to know the practice of the Master Plan under this study. However, government officials from different bodies such as from planning and development level, implementation level and academic level/training providers were the population for this study since they have close relation to this Master Plan in the role of either planning and/or implementation. Thus, Aspire to Innovate (a2i) and Directorate of Secondary and Higher Education (DSHE) as planning and development level, Teachers Training Colleges and Upazila Secondary Education Office as

implementation body were considered in care of implementation level. The govt. officials from these organizations were the population for this study.

From the above mentioned 4 organizations, researchers selected 15 officers purposefully (9 from Upazila Education Offices, 4 from Teachers Training Colleges, 1 from DSHE and 1 from a2i) to know the implementation status of the Master Plan for ICT in Education. On the other hand, researchers selected 3 secondary schools from 3 districts (1 from each district) as sample schools for this study. Total 25 secondary teachers were selected purposively from these sample schools to know the implementation status of the Master Plan for ICT in Education.

However, the sample districts were selected purposefully and then one secondary school was selected from each district purposively. From each school 10 teachers were planned to be selected, however, 8 teachers were found in 2 schools and 9 teacher in 1 school. Thus, total 25 teachers found from 3 schools. Total sample distribution and sampling techniques are given in the following table:

Table 1.1

Overview of sample and sampling technique

S/N	Sample	Sample Size	Sampling Technique
1	Assistant Teacher	25 (from 3 schools)	Purposively
2	Planning and Development Level Govt. Officer	2 (1 from a2i, 1 from DSHE)	Purposively
3	Implementation Level Govt. Officer	13 (4 from TTC, 9 from USEO)	Purposively

Note: Based on Primary Data

Data Collection

Two types of data collection tools were employed in this study – Focus Group Discussion (FGD) guideline and interview schedule. The FGD guideline was developed and used for conducting FGD sessions with the assistant teachers of the selected secondary schools. On the other hand, interview schedules were used to collect data from other respondents individually. The following table shows the participants, data collection methods and the related tools:

Table 1.2

Overview of respondents, data collection methods and tools

Samples	Respondents	Number	Total	Data Collection Technique/Tools	Sampling Technique
Planning and Development Level Govt. Officer	azi Officer	1	2	Interview	Purposively
	DSHE Officer	1			
Implementation Level Govt. Officer	TTC Trainer	4	13	Interview	Purposively
	Academic Supervisor	9			
Trainee Teacher	Assistant Teacher	27	27	FGD	Purposively
Total Respondents			42		

Note: Based on Primary Data

Methods of Data Analysis

The qualitative data were divided first into some identical categories or themes through giving codes. After that, the opinions and views were analysed according to the identified themes. In this report, all the data were presented under selected themes derived from the Master Plan for ICT in Education and collected data through descriptions and graphs.

Data Analysis and Findings

Data Analyses Themes

As the study was conducted in qualitative approach, the researcher analyzed and presented the findings through few themes generated from both the Master Plan and collected data. After analyzing the Master Plan eight themes were identified to address the study objectives. First theme is related to integration of ICT in teacher training curriculum. On the other hand second and third themes are related to develop adequate number of master trainers to train all secondary teachers in Bangladesh on ICT and digital content development skills. Moreover, fourth and fifth themes are related to introduction of distance courses, and certification and recognition of the courses respectively. Sixth theme is related to developing online course contents and module whereas seventh theme is related to recognition of online exams. The last theme is related to interest free loan opportunities.

Table 1.3

Key Themes for Data Analysis

1.	Inclusion of ICT in teacher training curriculum.
2.	Develop adequate number (at least 1000) of master trainers to train teachers on ICT and digital content development.
3.	Develop ICT & content development skills of all the secondary teachers through pre-service and in-service training.
4.	Distance course through radio, TV and internet to develop teachers' professional skills.
5.	Recognition and certification of online courses on teachers' training.
6.	Develop online course contents/modules for teachers' training.
7.	Arrange online examinations and award, recognition & certification.
8.	Provision of interest free loans for teachers to help them purchase ICT materials.

Note: Based on researchers view

Key Findings According to the Themes

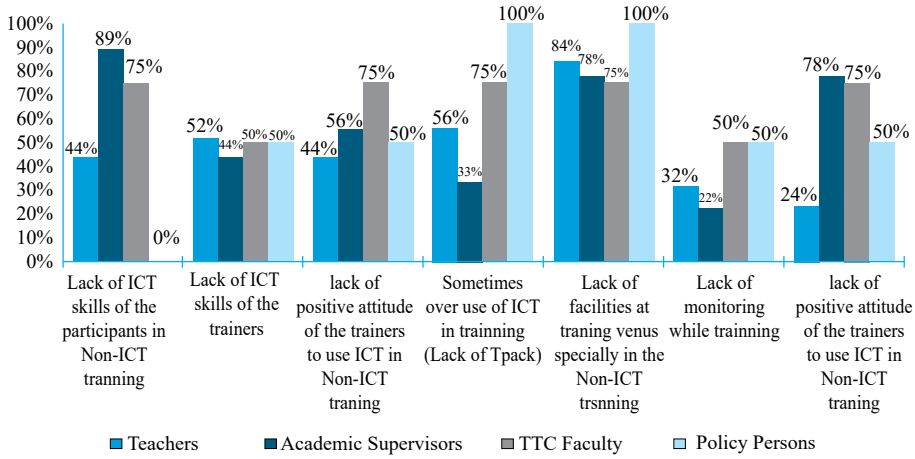
Inclusion of ICT in teacher training curriculum and challenges

- A 12 day face-to-face training on ICT and digital content development skills has been developed.
- ICT has been integrated in the teacher training curriculum as a tool of facilitation.

- Both trainers and teachers have lack of ICT skills in the non-ICT training.
- Both trainers and teachers have lack of positive attitude to use ICT in non-ICT training.
- Sometimes ICT is used excessively (unnecessarily) in some trainings due to lack of TPACK skills within both trainers and teachers.
- Lack of facilities at training venues especially in the non-ICT training.
- Lack of monitoring on TPACK skills during training.

Figure 1

Challenges for successfully integration ICT in training curriculum



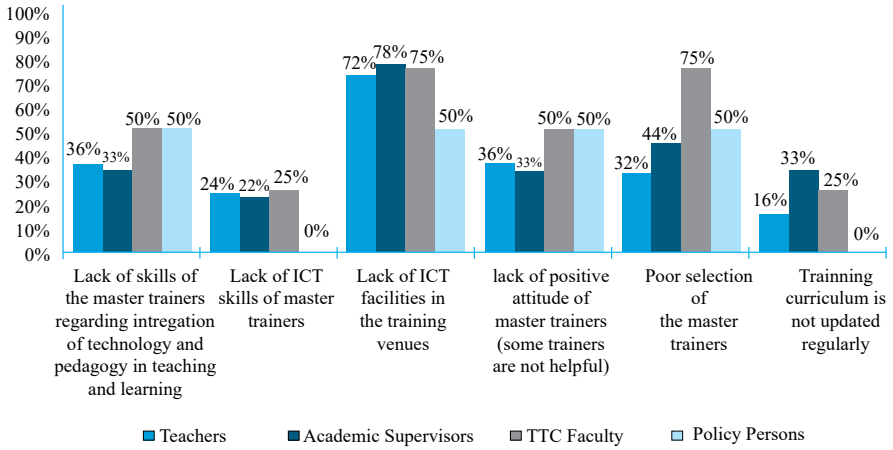
Note: Based on Primary Data

4.2.2. Develop adequate number (at least 1000) of master trainers to train teachers on ICT and digital content development and challenges

- 1000 master trainers have been developed to train teachers on ICT and digital content development skills though the number of master trainers are not adequate to cover all teachers at the secondary level.
- Both trainers and teachers have lack of TPACK skills.
- Lack of facilities at training venues with latest materials and software.
- Lack of monitoring on TPACK skills during training.

Figure 2

Challenges for developing adequate effective master trainers



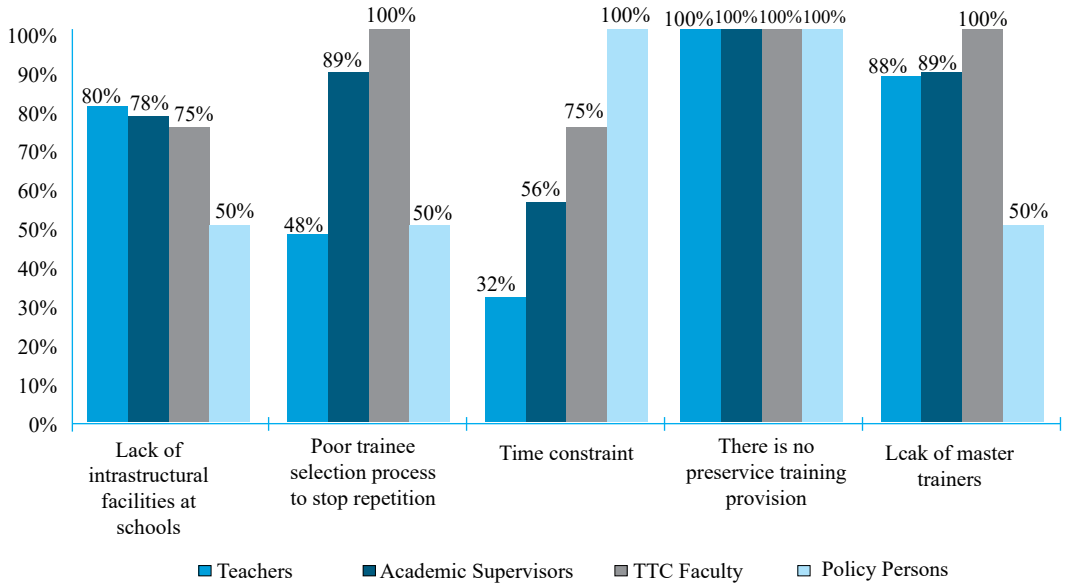
Note: Based on Primary Data

Develop ICT & content development skills to all the secondary teachers through pre-service and in-service training and challenges

- Around 200,000 teachers have received training on ICT and digital content development skills. Thus, around 100,000 teachers yet to be received this training so far. However, there is still time to cover for the rest of the teachers by 2021.
- "Upazilla ICT Training and Resource Center for Education (UITRCE) Phase-2" and "ICT for Education in Secondary and Higher Secondary Level Project-Phase 2" projects are supporting to achieve the target of developing all secondary teachers on ICT and digital content development skills.
- No pre-service training on ICT and content development skills for teachers is compulsory till now.
- Some trainees attended in the same training several times which indicates that trainee selection process is not efficient.
- Duration of the Master Plan seems not enough to develop all the teachers.
- There is lack of master trainers to develop all the secondary teachers professionally.
- Training curriculums are not updated regularly.

Figure 3

Challenges for developing all secondary teachers



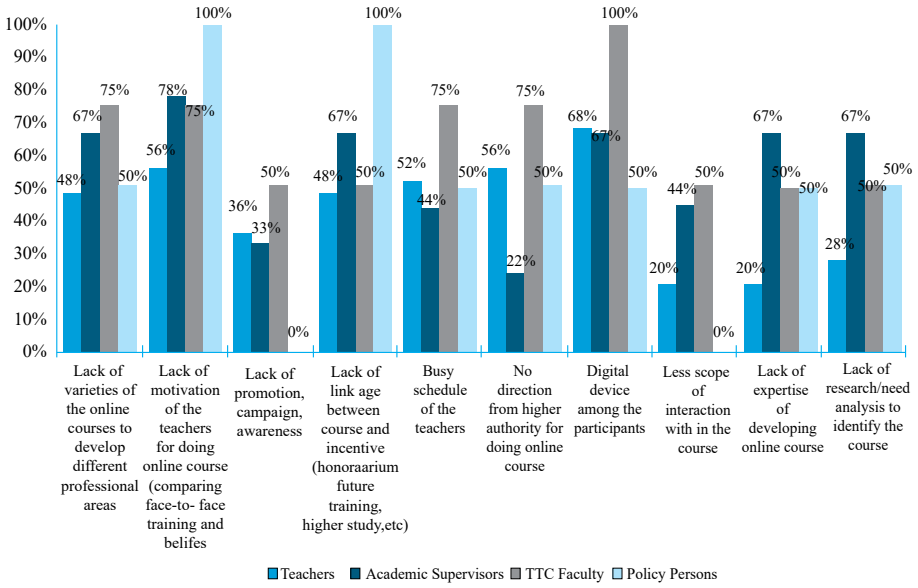
Note: Based on Primary Data

Distance course through radio, TV and internet to develop teachers' professional skills and challenges

- 16 online courses have been introduced in *Muktopaath* to capacitate teachers on different professional areas. Among these, 6 were developed by a2i and rest of the 10 were developed by development organizations.
- There is an online course in *Muktopaath* focusing on basic teaching and learning skills.
- Model classes were introduced in TV, but later stopped due to lack of TPACK skills.
- Lack of varieties of the online courses to develop different professional areas of the teachers.
- Lack of motivation of the teachers for doing online courses comparing to face-to-face training. The reasons behind this due to lack of linkage between course and incentives, i.e., honorarium, future training, higher study, etc.
- Busy schedule of the teachers is another challenge for doing online courses.
- Digital divices among the teachers is another challenge for participating online courses.
- Less scope of interaction within the online course compare to face-to-face training found as another challenge for teachers participation.

Figure 4

Challenges for developing distance courses successfully



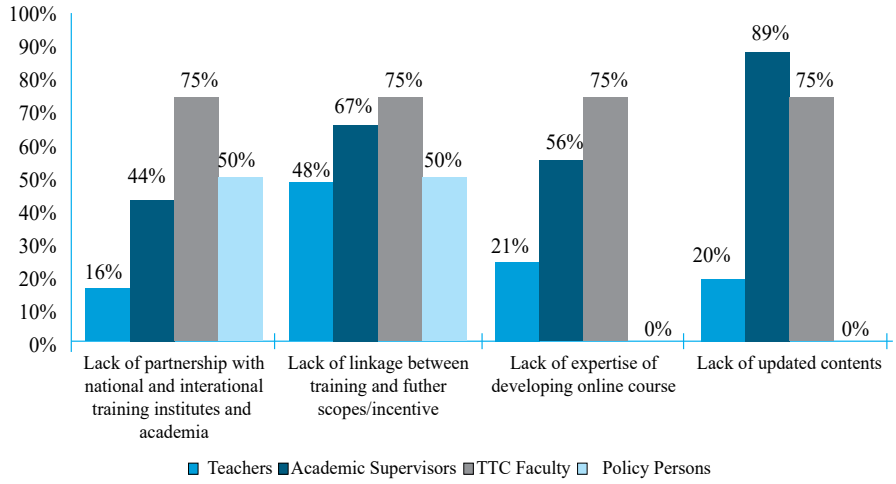
Note: Based on Primary Data

Recognition and certification of online courses on teachers' training and challenges

- Online courses are providing certificates though the courses are not recognized properly.
- Lack of partnership with national and international training institutes and academia is key challenge to increase recognition of the online courses for teachers.
- Lack of direction from higher authority for doing online course is another challenge.
- There is lack of research/need analysis to identify the updated courses required.

Figure 5

Challenges of recognition and certification of online courses



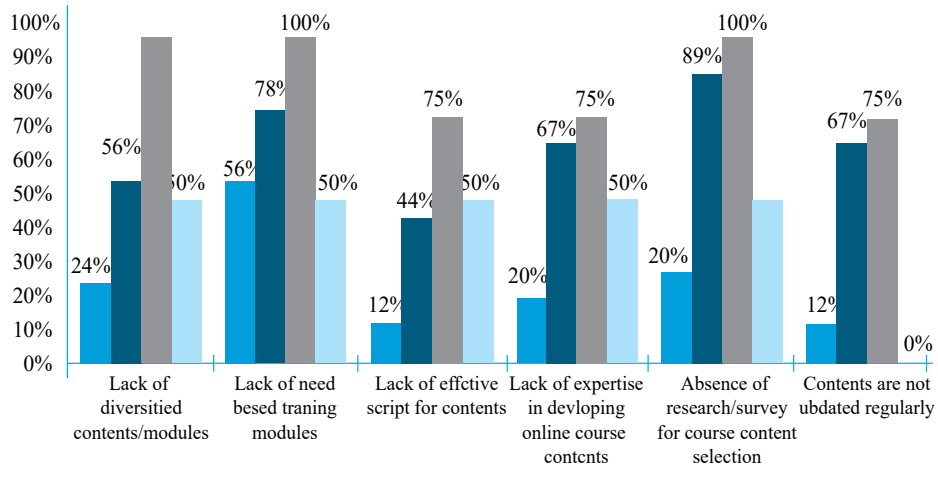
Note: Based on Primary Data

Develop online course contents/modules for teachers' training and challenges

- Online contents and modules developed for 16 are courses available in *Muktopaath*.
- There is lack of research/need analysis to identify the updated contents and modules required.
- Less scope of interaction within the online contents and modules are found in compare to face-to-face training module.
- There is lack of expertise found in developing online contents design and development.

Figure 6

Challenges for developing contents/modules for online course



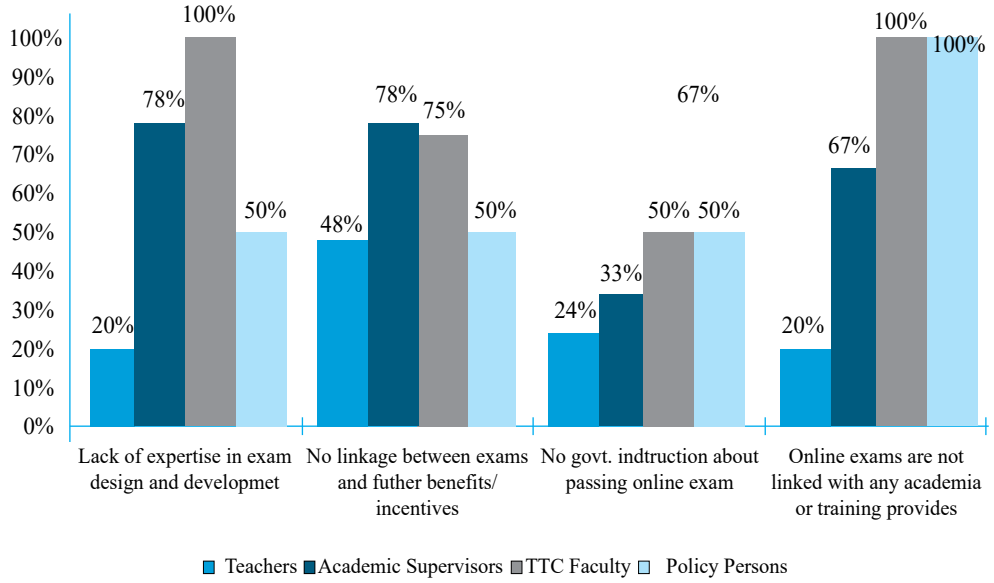
Note: Based on Primary Data

Arranging online examinations, award, recognition , certification and challenges

- No independent online exam is found though online courses have online exams.
- There is lack of expertise found in online exam design and development.
- No linkage found between exams and further benefits/incentives for teachers.
- Online exams for teachers are not linked with any academia or training institutes which is a key cause for less recognition of such online exam.

Figure 7

Challenges of recognition of online examination



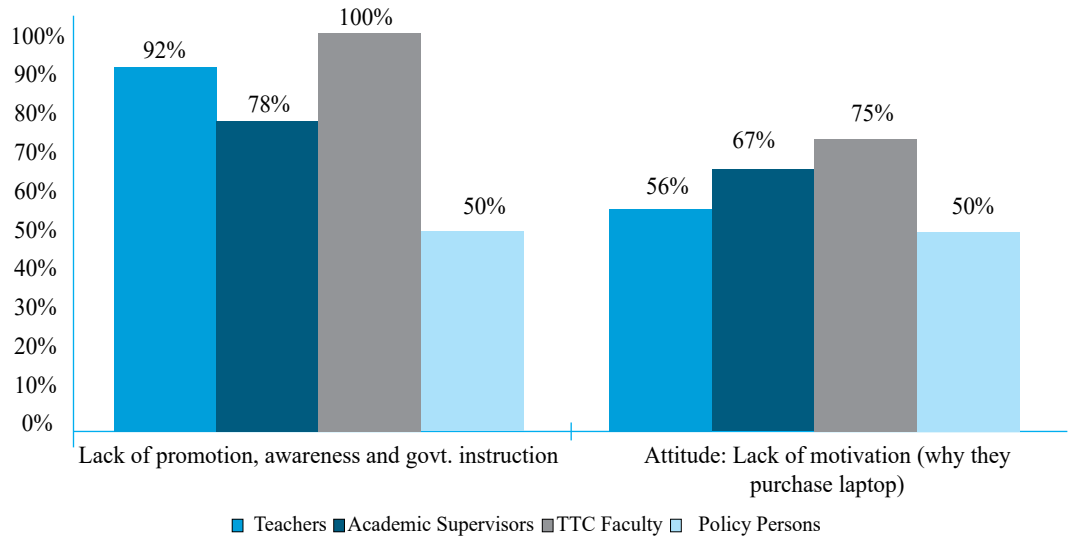
Note: Based on Primary Data

Provision of interest free loans for teachers to help them purchase ICT materials:

- Monthly installment provision for purchasing ICT materials has been introduced for teachers through making a partnership with Singer (a laptop seller company).
- Laptop and ICT materials are being provided as gift through best teacher award, best content developers award, best trainer award, etc. by a2i.
- Lack of awareness is found among the teachers regarding monthly installment facilities for purchasing ICT materials.
- Teachers also have lack of motivation for purchasing ICT materials.

Figure 8

Challenges for implementing interest free loan



Note: Based on Primary Data

Recommendations

Based on the findings, following can be the possible measures for improving implementation of secondary teachers' professional development activities as planned in the Master Plan for ICT in Education:

- Technological, pedagogical and content knowledge (TPACK) and skills should be developed among master trainers and teachers so that they can effectively integrate/use ICT in their training and teaching.
- Training room should have a minimum standard with necessary ICT materials/facilities (number of laptops, projector, screen, internet, sitting arrangement, etc. so that non-ICT training can be delivered using ICT materials.
- Training monitoring should be increased and focused on TPACK skill.
- Master trainers should be selected through competency test.
- More master trainers should be developed to cover all the teachers.
- Training curriculum should be updated regularly to accommodate latest knowledge and skills.
- More online courses should be developed covering different professional areas of the teachers.
- A system should be developed to track trainees so that repetition can be avoided.
- Information regarding online courses, benefits and loan facilities of purchasing ICT materials should be disseminated to teachers through campaign, promotion or official notices time to time.

- Continuous research//need analysis should be conducted to identify professional development needs of the teachers as well as explore latest knowledge and skills for selecting and developing online coursed.
- Online courses should be developed by prominent experts in the field.
- Online courses should be linked with benefits, i.e., to get chance further face-to-face training, higher education, other responsibilities, cash incentive/honorarium, etc.
- Online courses should be more attractive, interactive and updated through engaging experts in the field.
- Partnership should be developed with national and international training provider and academia to add value/recognition of the course (certificate and recognition).
- Some basic trainings (online) might be set as pre-condition for teacher recruitment.
- Independent online exam should be introduced, i.e., to evaluate prior knowledge of teachers which might be helpful to recognize teachers' practical knowledge and experience in the field.

Conclusion

Teachers' professional development is a key to ensure effective teaching learning at schools and support for quality education. ICT plays a significant role in the teacher development process in recent days. The Master Plan for ICT in Education was planned in 2012 for developing teachers for use of ICT in teaching and learning. Though most of the planned activities are being done, however, some activities are facing challenges to be achieved due to some reasons. The study identified the challenges and made some recommendations so that the implementation of the Master Plan can be achieved. Moreover, some of the recommendations will help to develop next Master Plan.

Acknowledgement

We are grateful to the authority of National Academy for Educational Management (NAEM) for giving us space for publishing our research article in NAEM JOURNAL. We are greatful to the reviewers and editors for publishing our article in the NAEM JOURNAL

References

Afshari, M., Bakar, K. A., Su Luan, W., Samah, B. A., & Fooi, F. S. (2009). Factors affecting teachers' use of information and communication technology. *International Journal of Instruction. 2* (1), 77-104.

Bangladesh Sangbad Sangstha [BSS] (February 28, 2014). Teachers develop 6,000 digital contents for multimedia classrooms. http://www1.bssnews.net/newsDetails.php?cat=0&id=303845$date=2013-01-03&dateCurrent=2013-01-13

Blurton, C (1999). New directions of ICT-use in Education. http://www.unesco.org/education/educprog/lwf/dl/edict.pdf

Kozma, R. B. (2005). National policies that connect ICT-based education reform to economic and social development. *An interdisciplinary journal of humans in ICT environment. 1* (2), 117-156.

Kulik, J. A. (1994). Meta-analytic studies of findings on computer-based instruction. In Baker & O'Neil (Ed.). *Technology Assessment in Education and Training*. Hillsdale, NJ: Lawrence Erlbaum.

Lowenthal, P., & Muth, R. (2008). *Constructivism*. In E. F. Provenzo, Jr. (Ed.), *Encyclopaedia of The Social and Cultural Foundations of Education.* Thousand Oaks, CA: Sage.

Mamun, A. & Tapan, S. M. (2009). Using ICT in teaching-learning at the polytechnic institutes of Bangladesh: Constraints and limitations. *Teacher's World-Journal of Education and Research.* 33-34, 207-217.

Mikre, F. (2011). The roles of information communication technologies in education: Review article with emphasis to the computer and internet. *Ethiopian Journal of Education and Science. 6* (2). http://www.ajol.info/index.php/ejesc/article/viewFile/73521/62437

Morgan, T. (1996). Using technology to enhance learning: changing the chunks. *Learning and Leading with Technology. 23* (5), 49–51.

OECD. (2002). *ICT:* Policy challenges for education. Planning Meeting, Agenda and Issue Paper. https://www.oecd.org/

Olson, J. (2000). Trojan horse or teacher's pet? Computer and the culture of the school. *Journal of Curriculum Studies*. *32* (1), 1-8.

Patil, S. V. (2012). *The Role of ICT in Educational Sector. Lokavishkar International E-Journal*. *1* (4), 91. http://www.liirj.org/liirj/oct-nov-dec2012/09.pdf

Pelgrum, W. J. (2001). Obstacles to the Integration of ICT in Education: Results from a Worldwide Educational Assessment. *Computers & Education*. *37,* 163-178.

Prime Minister's Office (2013). *Access to Information (a2i) Programme.* Dhaka, Bangladesh. http://a2i.pmo.gov.bd/content/multimedia-class-room

Prime Minister's Office (2014). *ICT in Education.* http://www.a2i.gov.bd/sites/default/files/ICT%20in%20Education_09_Janu_14.pdf

The Daily Ittefaq (2013). Jhinaigatite multimedia classroom kormoshuchi bayrtho words & thoughts: Multimedia classrooms programme has been failed in Jhinaigati. http://www.ittefaq.com.bd/index.php?ref=MjBfMTJfMzFfMTNfMV8yNV8xXzk3NTQ5

The Daily Sun. (2017). Use of multimedia in classroom: Successes and challenges. http://www.daily-sun.com/printversion/details/209947/Use-of-multimedia-in-classroom:-Successes-and-challenges

The Daily Jugantor (September 16, 2013). *2016* Shaler modhye shob skule multimedia classroom words & thoughts: Multimedia classrooms in all schools by 2016. http://www.jugantor.com/it-technology/2013/09/16/28610

Tinio, V. L. (2002). *ICT in Education: UN Development Programme*. http:www.eprmers.org

UNDP. (2004). Promoting ICT for human development. *A Pioneering Regional Human Development Report in Asia in 2004: Realizing the Millennium Development Goals.* http://www.apdip.net/projects/rhdr/resources/PDF

Volman, M. (2005). Variety of roles for a new type of teacher. Educational technology and the teacher profession. *Teacher and Teacher Education*, *21*, 15-31.

Voogt, J. (2003). Consequences of ICT for aims, contents, processes, and environments of learning. In Van den Akker, W. Kuiper & U. Hameyer (Eds.), *Curriculum landscapes and trends*. 217 – 236. Dordrecht: Kluwer Academic Publishers.

Watson, D. M. (2001). Pedagogy before technology: Re-thinking the relationship between ICT and Teaching. *Education and Information Technologies*, *6* (4), 251-266.

Submission: 31 December 2021