ABSTRACT

Bangladesh has enacted policies in favour of technology-enabled learning (TEL), and accordingly deployment of technology in education is going on. Deployment of technology does not mean the TEL will be implemented. Teachers need to learn TEL. Therefore, TEL-based teacher education is important to develop TEL in the schools. In line with the National Education Policy 2010 (NEP2010), the Bangladesh Government has developed the TEL through project activities and plans for implementation. Teaching Quality Improvement in Secondary Education Project (TQI-SEP) has been implemented in the country over the last 7 years. The study was mainly supported by policy documents and guidelines. A systematic review approach was used to understand the notion of TEL and its specific implementation pattern. Results suggest that TEL policies towards technology-enabled teacher education in Bangladesh are predominantly practiced by Bangladesh Open University (BOU). The findings imply the policy guidelines in relation to the context of TEL for teacher education in Bangladesh.

Keywords: Technology Enabled Learning; Teacher Education; Policy

INTRODUCTION

The Education Policy of Bangladesh consists in the Constitution of the country is to prepare the quality citizen for the country. The Ministry of Education (MoE) formulates and executes the education policies according to the guidance from the relevant section of the Constitution of Bangladesh. The Ministry of Primary and Mass Education is responsible for implementing policy for primary education and state-funded schools at a local level. In Bangladesh, all citizens must undertake twelve years of compulsory education which consists of eight years at primary school level and six years at high school level. Primary and secondary education is financed by the state and free of charge in public schools. Article 17 of the Bangladesh Constitution provides that all children receive free and compulsory education [1]. In addition, in Article 8(2) of the Constitution, the constitutional provisions of "equality clause" is contemplated under Article 27, "equality of opportunity in public employment" is contemplated under Article 29 and "protection of right to life and personal liberty" is contemplated under Article
These must be read and interpreted together with the provisions of Article 17 of the Constitution. In line with the constitutional provision, the concerned ministries formulate the policies and implement accordingly. In addition, the country also adopts the international agenda as policy documents. Bangladesh conforms fully to the UN's Education for All (EFA) objectives [2] and the Millennium Development Goals (MDG) [3] as well as other education-related international declarations, such as Sustainable Development Goals (SDGs). In agreement with the constitutional and international commitments, the country came out with different policy documents such as education commission reports, education policy, plan documents, and 5-Year plans. Finally, the Government gifted the nation a full-fledged education policy titled ‘National Education Policy 2010 (NEP2010) and has been implementing step by step. In order to address the issues in adoption of technologies, the education sector has been one of the priority agenda of the government. ICT has changed the total scenario of the education sector and which, in turn, changed the pattern of the teacher education around the globe and in Bangladesh as well. This discourse aims to discuss the policy and development towards the technology-enabled teacher education in Bangladesh.

The broad objective of the study was to explore the policy implications on technology enabled teacher education in Bangladesh.

The specific objectives were:

- to analyze the existing policies regarding technology enabled teacher education in Bangladesh;
- to investigate how the Government of Bangladesh was trying to ensure technology enabled quality teacher education by implementing different policies.
- to assess the policies of BOU in fostering advanced technology enabled teacher education;
- to know how BOU had become a pioneer in technology enabled teacher education through designing technology supported Open and Distance Education by its policies;
- to know how BOU was exploring a common goal to fulfill technology enabled teacher education by developing partnership, based on win-win cooperation and collaboration among different partner organizations.

METHODOLOGY OF THE STUDY

Research Design

To achieve more descriptive and in-depth information the research design was used in this study focusing on secondary data. The study adopted several methods to collect quantitative and qualitative information in order to fulfill the objectives
of the study. Self-structured survey questionnaires were used to generate quantitative information, whilst focus group discussions (FGDs), case studies, KII and interviews were conducted to collect qualitative data. Qualitative research method allowed respondents to articulate their attitudes, perceptions, feelings and beliefs in a much more explanatory way than quantitative data.

National Education Policy (NEP) 2010

The National Education Policy 2010 was ratified by the Parliament of Bangladesh in December 2010. It came to the existence in 2010, but it has started the journey in 2000. The government has gone through the complete survey to collect the opinions from all sections of people. This policy is another official commitment of the government towards teacher education because ensuring the quality of education is not possible without enhancing quality of teachers through professional training. As a result, the NEP2010 has incorporated a complete chapter on ‘Teacher Training’ which contains the policy provisions and strategies. In this way, the NEP2010 calls for teacher education for developing the quality of teachers in secondary education. The National Education Policy embodies the nation’s verdict and aspirations, the spirit of liberation war and independence; it reflects people’s goals and values and thereby follows the basic Constitutional guideline. The policy put emphasis on the national issue of educational quality and the technology in education. In its foreword, the Minister of Education emphasized that ensuring quality education for all children is a fundamental issue ensuring quality education for all is a great challenge for everybody. The main important force behind quality education and development of skilled human resource is a team of properly qualified, skilled and committed teachers. Technology has emerged as the most important factor in the modern world. Computer and Information Technology has become inseparable and most important part of education all over the world. There is a need to give it a priority in the education system as well. The NEP2010 highlights the ICT in education for within its main 30 objectives as follows:

12. to attach substantial importance to information and communication technology (ICT) along with Math, Science and English in order to build up a digital Bangladesh based on knowledge-orientation and cultivation of ICT;

21. to extend the use of information and communication technology (ICT) instrumental in educational process at every level [4].

It reveals that without thinking of technology, provision, procedure and implementation of teacher education is difficult. But is it necessary to mention that mainframe objectives section of the NEP2010 did not include the teacher education perspectives separately?
Further, a number of statements described in the NEP 2010 document related to technology in education. Table I illustrates the summary of major inclusion focused statements and in different chapters.

### TABLE I. STATEMENTS IN TECHNOLOGY-ENABLED LEARNING (TEL) IN THE NEP 2010

| SI | Location of Statements | Focus |
|----|------------------------|-------|
| 1  | Chapter: Information Technology Education (p. 40) Strategies of Higher Education | Open University will be built up as a true digital university enriched by facilities of IT (p. 40) |
|    | Chapter 24: Teachers’ Training (p. 64) | To train teachers of all levels in information technology and to ensure wider use of IT to build up a modern and developed Bangladesh (p. 65) |
| 2  | An Information Technology University (ITU) will be established for the purpose of training of teachers engaged in teaching of IT in higher education and to facilitate research in this field (p. 41) | |

*Source: National Education Policy 2010*

These statements focus on both TEL-based teacher education and deployment of technology secondary education sectors. Mainstreaming of technology and teacher education is also included in these statements. Although, none of the policy statements directly uses the term TEL-based teacher education, broadly they can be considered to have explicit or implicit link to different aspects of technology-enabled education. Critical analysis of the policy statements suggests that most of the statements are broad and often uncertain in indicating specific meaning. National Education Policy 2010 comprises a number of sections that reinforce technology in education. However, it is not clarified in the policy if how TEL may be mainstreamed, and TEL-based teacher education will be developed. No specific guidelines have been given for that. Instead, in the Statement 1, ‘Open University will be built up as a true digital university enriched by facilities of IT’. BOU is the only provider of distance education and which is government run University. In this way, TEL has been duly emphasized in the NEP2010. This reflects and an attitude (of policy makers) that is aligned with inclusion rather than segregation.

**Master Plan for ICT in Education 2012-2021**

2021 has been marked as the Golden Jubilee for Bangladesh and in line; the government prepared the Vision 2021. In consonance with the V2021 the Ministry of Education has formulated Master Plan for Information and Communication Technology 2012-2021 [5]. This plan document already prepared for ensuring the technology in education which, obviously, has a section on ‘Developing the professional skills of teachers through ICT’. Table II illustrates the CPD of teachers through open and distance learning method leveraging the technologies such as broadcast and internet.
TABLE II. CPD OF TEACHERS THROUGH OPEN AND DISTANCE LEARNING METHODS

| SL | Statements                                                                 | Focus                                      |
|----|-----------------------------------------------------------------------------|--------------------------------------------|
| 1  | 2.1 Inclusion of basic ICT materials (such as preparing digital contents     | Technology-focused curriculum              |
|    | with basic computer, multimedia, internet, presentation software) in the    |                                            |
|    | curriculum of teachers’ training                                           |                                            |
| 2  | 2.2 Preparing Master Trainers of sufficient number for coordination of      | Master Trainers                            |
|    | ICT in teaching-learning on the use of ICT to develop class-wise materials  |                                            |
|    | for teaching-learning                                                      |                                            |
| 3  | 2.3 Provision of quality in-service training for all teachers of primary    | CPD                                        |
|    | schools to help them acquire basic skills in ICT; use of ICT in teaching-  |                                            |
|    | learning materials through ICT                                             |                                            |
| 4  | 2.4 Introduction of distance learning program through radio, television     | Broadcast and internet technology           |
|    | and internet to facilitate conducting of learning programmes to develop     |                                            |
|    | the professional skills of the Primary School Teachers                     |                                            |
| 5  | 2.5 Developing online courses contents/modules for teachers’ training      | Teacher education through e-Learning        |
|    | recognition and delivery of certificates                                    |                                            |
| 6  | 2.6 Organization of exams of online courses in teachers’ training;         | Ministerial recognition                    |
|    | Source: Ministry of Education, 2013                                         |                                            |

Teachers’ Training in NEP 2010

NEP2010 identified the existing teachers’ training system of the country, which was very traditional, insufficient, certificate-based, loaded with theoretical knowledge, incomplete in practical learning, based on rote learning and conventional testing system. In response to this, the policy puts emphasized to upgrade government training colleges, National Academy for Educational Management (NAEM) for the secondary level teachers, Training Institute for the Madrasa teachers, HSTTIs for subject-based training of higher secondary college teachers and educational and research institute for higher training and research under Dhaka University. The Government training colleges offer B.Ed. courses and some of them also award M.Ed. degree to the teachers.

The Open University also awards B.Ed. degree through distance learning. Besides, there are 106 private secondary teachers’ training centers. The infrastructure, quality of training system and contents are taught in all these institutions are, to a large extent, of low standard [4]. The NEP2010 also states that existing teachers’ training system is inadequate, far short of demand and poorly traditional. So, the number of trainers will be increased, and the quality of training will be enriched. Besides, there will be a system to evaluate the efficiency of the trainers too. NEP2010 recommended 17 strategies for developing the teacher education in the country. They are:

1. Immediately after their recruitment, primary and secondary teachers will undergo two months’ foundation training and for the college teachers it will be four months. The primary and secondary level teachers must take part in courses of C-in-Ed and B.Ed. within three years of joining their posts.

2. The curriculum and syllabus for the training program will be modernized.
3. The trainers will be accordingly trained in their own subjects before the change in curriculum and syllabus takes place. They should have adequate knowledge and idea regarding their own subjects.

4. The existing primary teachers training program known as C-in-Ed will be revised and the duration of the new programs will be one year and a half instead of one. Modern strategies of teaching-learning and evaluation will be incorporated. Practical classes will continue for at least nine months in two phases through the introduction of internship.

5. The government college teachers are usually trained at National Academy of Educational Management (NAEM) and this training will continue. Phase wise, every teacher will have to undergo fresher’s courses every three years. Steps will be taken to establish one Regional Academy of Educational Management in each division to accelerate the course-based training programs.

6. Comprehensive training will be introduced for employees at middle and senior levels to create qualified and confident officials in educational administration.

7. A basic training will be organized for the teachers of non-government schools and colleges. These teachers will also be trained at HSTTI. The existing subject-based training conducted at HSTTI will be strengthened.

8. In order to standardize the quality of all training institutions and with a view to creating a standard environment in them, the officials of equal status of different institutions will be transferred from one to the other.

9. Training facilities of the trainers will be created both at home and abroad to upgrade their standard. Existing special training for Head teachers and Principals will continue.

10. Extensive co-curricular programs will be included in the training and the role of the trainees will be properly evaluated.

11. Internet connection will be provided to all educational and training institutions to help all academic staff/personnel update themselves with the latest information.

12. Continuous assessment will be conducted to evaluate the proficiency of the trained teachers. Any weakness found will be remedied through special measures.

13. The training programs, designed for creating efficient teachers appointed for performing different duties at different types of educational institutions (primary, secondary, higher education, technical, vocational and for the disabled) will include various courses of diverse contexts.

14. Teachers' organizations should be encouraged to play their roles in upgrading the standard of teachers and not just in realizing their professional demands.
15. Universities will be encouraged to initiate training programs for the young/fresh faculty members.

16. Increment of financial grants/remunerations and other facilities for the trainees will be ensured.

17. Training programs should be made more realistic and effective. To do so and to ensure full-time training, the establishment of non-government training institutions of inferior standard will be discouraged. Rather, the number of government institutions will be increased to a rational number and full residential facilities will be provided to the trainees to make the training programs meaningful and effective.

**Current Status of Teacher Education**

Uplifting the quality of education in all tiers was a priority in the national education policy 2010. In the policy, the Teachers’ Training chapter has been rightly addressed the issues in teacher education, and accordingly, the Government is trying to achieve the teacher education goal. The expansion in teacher training continued and a large number of teachers received professional training as more training colleges were established. Teacher education and training are categorized into two: pre-service and in-service, which are offered by both TTCs and Faculties of Teacher Education in Universities. The Pre-service training is the training offered by the TTCs before teachers engage in their teaching career. Teacher Training Colleges have been upgraded to Colleges of Education to offer 4-year Pre-service B.Ed. (honors). Government implements various projects and provides teacher education partnering TTCs and universities. Figure 1 illustrates the status of TTIs in the country.

![Figure 1. Number of Teachers Training Institutes in Bangladesh](source: BANBIES, 2017)

The in-service training as discussed in the Teacher Education Policy is targeted at upgrading teachers’ knowledge, skills, and competences through short courses, seminars, workshops, conferences, educational tours and exchange programs. But most of TTCs do not give drive on CPDs. They only become the partner of the ministry projects to conduct CPDs. There may be shortage of teachers or of lack of policy decisions. Figure 2 illustrates the numbers of teacher
trainers. The number of TTIs in Bangladesh is also limited to cater to all teachers for proving CPDs. These shows there are resource constraints in Bangladesh to implement teacher education programme through face-to-face mode, and where there are limited resources, distance education becomes the alternative way.

In line with this, BOU also offers distance programmes in B.Ed./M.Ed. for classroom teachers that are not trained. The pre-service and in-service training are open to any qualified person. Admission requirements and procedures for selecting candidates for pre-service training are stipulated in Bangladesh’s teacher education policy. BOU is already in an agreement with the ministry to provide CPD for 30,000 college teachers through blended approach. This is the latest development of BOU’s drive on ICT-based CPD. Normally; it runs academic programmes (B.Ed./M.Ed.). But from the long past, the country also had a drive on TEL-based teacher education, for instance, the TQI-SEP (Teaching Quality Improvement (TQI) in Secondary Education Project) (well-known in TQI). Secondary Education Sector Development Plan (SE-SDP) was developed in 1998 with the technical assistance of ADB to develop the secondary education sector as a whole. Secondary Education Sector Improvement Project (SESIP) was implemented (1999-2007) as the first slice of SESDP and Secondary Education Sector Development Project (2007-2013) taken as a follow-up. Secondary Education Sector Investment Program is taken based on the inputs of the mentioned previous projects. It was implemented through program approach (treasury model). The program has been taken under a multi-tranche financing arrangement with ADB amounting to US$ 500 million for 10 years.

**TEL-Based Teacher Education Development**

In Bangladesh, most of the technology initiatives are implemented through project-based, and project titled Teaching Quality Improvement in Secondary Education Project (TQI-SEP) of the Ministry of Education and Access to Information (a2i) project of the Ministry of Information and Communication
Ministry (MOICT) had been the mega-projects. TQI-SEP did CPDs for teachers and a2i did some MOOCs for teachers.

Tqi-Sep

In order to enhance the quality of secondary education, the Government of Bangladesh implemented a number of initiatives. Teaching Quality Improvement in Secondary Education Project (TQI-SEP) was one of the initiatives, among others, to address the quality of secondary education in Bangladesh, under the funding arrangement with development partners. This project was jointly funded by the Government of Bangladesh (GOB), Asian Development Bank (ADB) and the Canadian International Development Agency (CIDA). It was formally launched in 2005 and closed in 2012 and continued with the 2nd phase. The Directorate of Secondary and Higher Education (DSHE) worked as the implementing agency (Project Management Unit) under the purview of the Ministry of Education (MOE) along with the project’s two partner organizations National University and National Academy for Educational Management (NAEM). The estimated total cost of the Project was equivalent to US$108.7 million. Being an executive agency, ADB financed the major share (63%) of the cost as loan to the GOB and CIDA’s contribution was 17% [10] and GOB's shared the rest which was 20% of the cost [6]. The project was termed as TQI-SEP which is well-known as TQI.

The projects’ prime document – project profile (PP) – identified major problems include access to school (very low gross enrolment rate, about 25%), lack of quality education for learners (absence of essential teaching conditions as most secondary teachers were found to be professionally untrained, theory-oriented teacher education curriculum), high dropout rate, decline in students’ achievements, and low percentage of female teachers [6,7]. Considering these problems, the TQI-SEP started its journey with setting its prime goal to improve the quality of learning through improved teaching quality [6]. Therefore, TQI became the pioneering project to implement teacher education and worked on Organizational Development and Capacity Building; Improving Teacher Training Facilities; Strengthening in-service and pre-service Teacher Training and Increasing Equitable Access and Improving Community Involvement [11]. The project had recognized that the secondary teachers would require TEL-based teaching practice skills for supporting effective learning for all children [8].

The project implemented teacher professional learning involved technology. Thus, in addition to professional learning opportunities, the project plan included a range of supportive activities to enhance the implementation of TEL at real classroom setting. Improving physical facilities (to remove the barrier to physical movement), modifying teacher education curriculum, introducing continuous professional development (CPD) was enhanced under one component of the project; while strengthening classroom teachers with the provisions for
TEL practice was another significant strand included in the subject based professional development activities. Under the project a number of reform activities were undertaken to enhance TEL in the secondary education sector. TEL Orientation Program for teacher educators from TTCs and relevant NGO representatives; Professional Development program for secondary in-service teachers; revision of teacher training curriculum by incorporating issues on gender and inclusive education and CPD for pre- and in-service secondary teachers. In order to support these activities, the project prepared and supplied the necessary equipment and materials. Materials for teacher instructional improvement included curriculum/content for professional development of TEL, Modules and TEL Resource Book for inclusive concept and practice, and TEL booklet and posters for conception and awareness building. One of the specific focuses of the project was to equip pre- and in-service secondary teachers with necessary knowledge and skills that are appropriate for enhancing effective instruction for all students.

To achieve this goal, all eligible teachers of grades 6-10 were involved in professional development programme and activities. These teachers were drawn from both government and private secondary schools in Bangladesh [9]. In order to prepare teachers for inclusive practice, the project picked three districts of the country. In the project documents these districts were termed as outreach districts [8] and considered as vulnerable to basic resources and facilities (e.g., lack of female teachers, absence of untrained teachers, inappropriate teaching materials, classroom environment etc.) required for effective teaching-learning. The target was to select on an average 33 secondary schools and 1000 teachers from each district. In total, 3000 in-service secondary teachers were supposed to have received a professional development program to equip themselves with knowledge and skills required for inclusive practice. For supporting teachers’ practice in classrooms, the project provided an IE orientation program for school management committee members of each of these schools.

CONCLUSIONS AND RECOMMENDATIONS

The effective integration of ICTs into the teacher education system is a complex, multifaceted process that involves not just technology but also curriculum, pedagogy, institutional readiness and teacher competencies. Assessing the policies and strategies of the Government of Bangladesh and BOU for achieving the goals of technology enabled teacher education is vital issue for sustainable development teacher education. Findings of this study would have paramount importance for the Government of Bangladesh and the BOU planners, policy makers, programme formulators and implementers.
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