The Teachers' Portal as a tool for teachers' professional development in Bangladesh: Facilitating nationwide networking and digital multimedia content for 40,000 schools

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ABSTRACT

The Teachers' Portal (teachers.gov.bd) is an online platform for Bangladeshi teachers designed to store and retrieve digital educational contents of different subjects useful for classroom teaching and students' learning. The portal also facilitates professional networking among teachers across the country. This study aims to find out the benefits of using this Portal and associated challenges from teachers' perspective. Following a mixed methods research approach Teachers, head teachers, teacher educators from primary, secondary, madrasa and vocational educational institutions and specialists on teachers' Portal (N=410) were interviewed and consulted for the study. Telephone interviews, online surveys, Key Informant Interviews (KII), Focused Group Discussions (FGD), Face-to-Face interviews, and large consultative workshops were used to collect data. The results suggest that teachers are motivated to use the Portal as its contents stimulate students' creativity and encourage students' active participation in classrooms learning. Besides, it empowers teachers in a number of ways. However, internet connectivity, slow Internet speed, power failure, technical issues, high cost of Internet and unavailability of equipment are found as major challenges. In short, the Teachers' Portal is a key driver for changing Bangladeshi education and preparing the young generation with quality education.

Keywords: Teachers' Portal; Professional Development; Virtual Communities; Online Professional Platform; Bangladesh.

BACKGROUND

The horizon of new knowledge and new teaching-learning methodology is expanding and the window to the horizon is constantly shifting and changing (Thomas & Brown 2009). Societies are in a race against time to bring the latest information to their students in order to groom them to participate in the global economy and the teachers are the vehicles of that information. As the vessels of knowledge, teachers have the responsibility to not only be experts in their respective subject-matters but also be proficient in wielding modern teaching and learning tools (Jung 2005). From this point of view, teacher training is crucial to keep teachers current in their teaching subjects. But providing face-to-face training to a wide range of teachers in a short time is another challenge. Thus, there is increasing pressure to devise superior alternatives to traditional teacher training methods. There is now demand to ensure teachers' professional development in ways that are more far-reaching and time-efficient and make greater use of peer-to-peer learning and collaboration. Online platforms can play noteworthy roles in this regard as "teachers from all disciplines have widely integrated Information and Communication Technology (ICT) to improve their teaching styles" (Liu 2011; Liu & Velasquezbryant 2003; Hew & Brush 2007; Donnelly, McGarr & O'Reilly 2011 in Khan, 2014) and they can exchange their expertise through online platforms.

Bangladesh has already established internet-enabled classrooms called Multimedia Classrooms (MMC). The number of multimedia classroom in secondary schools are 23,331 and there are 15,000 multimedia class rooms in primary schools (a2i.pmo.gov.bd). With a total of 38,331 multimedia classrooms in the country, Bangladesh, with small resources, has provided the necessary infrastructure for using digital tools and material to its whole population.

In these classrooms, teachers use digital contents to teach various subjects ranging from sciences to humanities. To ensure quality education in multimedia classrooms, which is pedagogically sound and prepare children to be active and productive in the society, teachers are in need of subject-based multimedia contents. The idea of a national teachers' Portal came into light with the necessity of supplying a wide range of multimedia contents. The UNDP and USAID supported Access to Information (a2i) Programme of the Prime Minister's Office of Bangladesh, in collaboration with the Ministry of Education and the British Council, designed and developed an online platform named 'Teachers Portal' (TP) (teachers.gov.bd). It is an online platform for primary, secondary and higher secondary teachers from general, vocational and madrasa education systems in Bangladesh. Teachers find necessary multimedia contents (using images, audios, videos, animation, maps etc. for various subjects in both primary and secondary levels) to facilitate their lessons using the available multimedia tools. Teachers, themselves, develop and upload digital contents in this platform. Furthermore, they can share ideas and interchange contents through this platform. As of July 11, 2017, the Teachers' Portal connects 204,715 teachers and contains 113,317 content contributions (teachers.gov.bd).

The focus of this paper is to identify the benefits, challenges and prospects of the Teachers' Portal which attempt to bridge the training gap by creating a space through shared learning for teachers.

SPECIFIC OBJECTIVES

The specific objectives of this research are to:
1. Assess the benefits of Teachers' Portal for teachers in Bangladesh.
2. Identify major challenges associated with the Teachers' Portal.

REVIEW OF LITERATURE

There has been a substantial ICT development intended to deliver learning and teaching to a wider group of learners across the world (Kisanga & Ireson 2014). "Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy" (Noor-Ul-Amin 2014, p.1). Accordingly, using the internet as a supplementary teaching resource is an advantage for teachers (Acikalin 2009; Cunningham & Andersson 1997; Dudeney 2007; Gibson & Oberg 2004; Gray et al. 2007; Harmer 2007; Karchmer 2001; Kennedy 2010; Kilimci 2010; Kuo 2008; Madden et al. 2005; Muehleisen 1997; Abdallah 2007; Sharples et al. 2009; Singhal 1997; Tuvér & Blomqvist 2009; Young 2003 in Brändström 2011).

Brändström (2011) investigates the influence of using internet on planning and instruction. The researcher tries to find out how the internet is used as an educational mean in teachers' short-term course/lesson planning and English teaching balancing the use of national curriculum, course literature, newspapers, films, tapes etc. The study focuses solely on the standpoint of English teachers working in upper secondary schools in the Aland Islands. For collecting data, researcher interviewed (face-to-face) five upper secondary school teachers. According to the findings, teachers think that the internet is a valuable source of information and an amazing additional teaching tool. Use of internet motivate the students, make teaching more enjoyable, and brings variation in teaching. Yet, teachers reported technical problems as one of the four major drawbacks.

With the wider use of ICT in education, issues regarding teachers' professional development came into light because "inadequately trained teachers, who are not supported through professional development (PD), may not be expected to be effective in their teaching practice" (Onguko 2012, p.1). Though governments and teacher training institutions around the world have recognized the importance of integrating ICT in education and teacher training, still, there are possibilities and constraints in adopting ICT in teacher training and professional development (Jung 2005).

Mahmud and Ismail (2010) report on a study which explores *the impact of training and experience in using ICT on teachers' basic ICT literacy.* The study followed quantitative methodology in the form of a survey using Attitude towards ICT Questionnaire and collection of two tests named ICT Knowledge Test and ICT Skills. Randomly selected 303 non-ICT in-service teachers, serving in government secondary schools in Malaysia, were the samples for this study. The results demonstrates teachers' positive attitude toward ICT. Additionally, it exposes that teachers' knowledge, skills and attitude is influenced by formal ICT training and ICT experience. The researchers suggests that elderly and more experienced teachers are needed to be identified to provide with specially designed training programs, in different forms of ICT courses and workshops.

The necessity of teachers' professional training on using technology in Bangladesh is a burning issue as study reveals the unsatisfactory scenario of using technology by teachers. For instance, a study of English in Action (EIA), Bangladesh (2009) reveals very little use of technologies in education (EIA 2009b). According to Khan,

> In spite of the greater importance of using ICT in education, most of the teachers in Bangladesh (one of the developing countries) who have basic computer skills, basically use ICT for performing their administrative tasks. They frequently use ICT for their daily departmental activities, such as: preparing notes, upgrading knowledge, keeping administrative records, and searching information for basic purposes. (Khan 2014, p.22)

A number of tensions come out when subject teachers are involved with ICT in their classrooms. One of the tensions is regarding teaching about and teaching through ICT (John & Sutherland

2004). Nevertheless, "without prior knowledge or experience of using particular new technologies, teachers and students could use them and bring about changes in educational outcomes" (Leach 2008; Leach et al. 2005 in Shohel & Power 2010, p.202). Having this idea in mind, government of Bangladesh have started teacher training for all subject teachers in multimedia digital content development which focuses on both pedagogical knowledge and technological knowledge.

In respect of sharing multimedia digital contents, teachers' networking skill is necessary as well along with pedagogical and subject knowledge. Vuorikari, Garoia, Punie, Cachia, Redecker, Cao, Klamma, Pham, Rajagopal, Fetter and Sloep (2012) argue, "the unprecedented opportunities brought about by networking tools enable teachers to network and collaborate with other teachers from anywhere, at any time" (p.16). In this respect, the teachers' Portal of Bangladesh, the online platform was created to connect teachers for sharing subject contents, ideas and experiences. It aims to work as a peer learning platform as "progressive teachers who are early adapters of technology can become change agents for their peers" (Pacific Mountain Network in Sherry 1996). Subsequently, online communication ensures collaboration and helps in peer tutoring and reflection. It also ensures users' increased participation in the learning process (Macknight 2000).

One feature of the described teachers' Portal of Bangladesh is blogging which is used for exchanging opinions among the Portal users. Researches have proved the benefits of blogging for professional community. For example, Zandi, Thang and Krish (2014) investigate the role of blogging on teachers' professional development. They also identify blogging's impact on Teacher´s learning and teaching practices. E-mail correspondence was the mode of participation in this research. The researchers followed a qualitative action research involving 7 Iranian EFL (English as a Foreign Language) teachers from 2 universities. There was a blog which was generated for the teachers to share teaching practices. After training sessions on posting and responding to each other's comments, the teachers implemented tasks given in the blog and shared their views and participated in the discussion. Researchers were participant observers and moderators in the blog activities. The findings disclose that blogging is beneficial in promoting collaborative interactions. Apart from that, the study shows that teachers emphasize on usefulness of technology in teaching and learning for both themselves and students. Additionally, teachers learn a lot by collaboration and sharing their knowledge and opinions with other members through blogging.

The present study analyses the factors related to the implementation of a new initiative which may reveal the probability of sustainability of this venture. Since, "The successful adoption of new practices by teachers and obtaining positive outcomes and acceptance of a program for professional development are to a large extent determined by its design and implementation" (Todorova & Osburg 2010, p.59).

METHODOLOGY

The study adopted several methods to collect quantitative and qualitative information in order to fulfill the objectives of the study. It provides an accurate portrayal or account of the characteristics, for example behavior, opinions, abilities, beliefs and knowledge of a particular individual, situation or group.

Population, Sample and Data Collection Procedure

Since this study is investigating benefits and challenges of using Teachers' Portal in Bangladesh, all the users of the Portal were considered as participants in this study which led to a total of 410 teachers. To confirm representation and variation, few logics were considered while sampling, for instances, region (urban and rural), gender (male and female) and institutions (Primary, Secondary, Madrasa and Vocational).

As Teachers' Portal have members from all over the country, researchers attempted to select respondents from all 7 divisions and 64 districts of the country. Data was collected from all 7 divisions and 58 districts. The 6 districts which couldn't be covered are Barguna, Cox's Bazar, Laxmipur, Narayanganj and Shariatpur.

Six types of methods were used to collect including data- telephonic interview, online survey, Key Informant Interview (KII), Focused Group Discussion (FGD), Face-to-Face interview, and large consultative workshop.

Table 1. Sample Distribution for Phone interview and online survey

Division	Covered District	Phone interview (% of data)	Total sample from Phone interview	Online survey	Total sample from Online survey
Dhaka	15	24%	41	12%	15
Khulna	10	19%	33	30%	37
Rajshahi	8	17%	30	22%	27
Barisal	5	9%	12	12%	15
Chittagong	8	11%	19	15%	19
Sylhet	4	10%	17	6%	5
Rangpur	8	10%	18	3%	4
Total			=170		=122

Table 2. Sample Distribution for FGD and Face-to-face interviews

	Number	Number of Participant (Each)	Male	Female	Total Number of Participant
FGD	8	8	32	32	8X8=64
face-to-face interviews	24	1	12	12	24

Table 3. Sample Distribution for FGD and Face-to-face interviews

	Head teachers	Teacher	Teacher trainer	Pedagogy expert	Teachers' Portal expert	Online training expert	Total number
Consultative workshop	10	10	3	2	-	-	25
KII	-	-	-	-	3	2	5

Data Collection Tools

Table 4. Tools used for data collection

Method	Tools
Online Survey	Structured Questionnaire
Focused Group Discussions (FGDs)	Agenda based FGD schedule
Consultative Workshops	Researchers' Diaries
Telephonic interview	Structured Questionnaire
Key Informant Interview (KII)	Structured Questionnaire
Face-to-face Interview	Structured Questionnaire

Sampling Technique

A systematic sampling technique was used to select respondents for phone interviews. The database was first divided into 64 districts. The first respondent was randomly selected from the first 10 names of each district and then each 100th name was selected. More respondents were selected from larger divisional cities with higher population like Dhaka, Chittagong, Rajshahi, and less were selected from districts with smaller population and remote districts like Rangamati, Cox's Bazar and Panchagarh, etc.

The researchers depended on randomization for participant selection so age was not a consideration and there was no bias for age. Moreover, the geographical distribution of the participants (rural and urban) was also randomized. After the sample for phone interview was selected, the researchers determined the respondents' geographical location by mapping it to the location of their schools according to the definition of 'rural' and 'urban' as is used by the Government of Bangladesh. During phone interviews the respondents were asked if their school was in rural or urban region to verify the original mapping.

No sampling technique was applied for the online survey. The survey was created on Survey Monkey online software and the link was posted on the Teachers' Portal and it was open for all members of the Portal. The link was kept open for 5 days. Periodic reminders were posted on the Portal to encourage members to take the survey. The number of completed surveys at the end of day 5 was the sample size for the online survey.

Participants were randomly selected for the focus group discussions (FGD) and large consultative workshops. Both the FGDs and workshops were held in two training colleges- Pabna Teachers' Trainings College (TTC) and Feni Teachers' Training College. The researchers randomly selected 32 schools under the jurisdiction of each trainings college. A systematic sampling technique was applied here as well. From the list of schools under each TTC, one school was randomly selected. Then every 10th school was selected until 32 schools were selected. The schools were asked to send one teacher from each school who is a member of the Portal. For the FGDs, it was tried to ensure equal number of male and female participants. Out of the 32 schools, odd numbered schools were asked to send only male teachers and the even numbered schools were asked to send only female teachers.

The KII was conducted with the project's focal points on Teachers' Portal and online training experts. The teacher trainers were selected randomly from the pool of trainers engaged at Pabna TTC and Feni TTC, where the focus group discussions were held.

Three participants from each FGD were randomly selected for face-to-face interviews in order to triangulate the data collected from the phone interviews.

One large consultative workshop was held in Feni TTC. The participants included head teachers, teachers, teacher trainers and ICT pedagogy experts. For the workshop, the head teachers and teachers were selected from 20 different schools. Same sampling technique as used for FGD was applied here as well. Two randomly selected pedagogy experts and three randomly selected teacher trainers of TTC (different from KII) attended the workshop. Data was analyzed through SPSS software (IBM, v22). The researchers reviewed, edited and cleaned the data by performing a series of frequency and data range checks. Any inconsistencies were checked visually by comparing the electronic entry and original questionnaire. Data quality was ensured through multiple procedures of review and cross-checking. Researchers reviewed all questionnaires on the same day of completion so that any errors or inconsistencies identified could be minimized instantly.

Ethical Issues

All the respondents at all times were aware that the survey was voluntary and they could choose to quit anytime they wanted. For the phone interviews, respondents were requested for appointments according to their convenience and the interviews were conducted on the appointed time. Respondents also had the liberty not to answer any question, if they chose to do so. The respondents were assured that no names or personal information will be disclosed; only generalized findings would be distributed. Similar ethical considerations were also provided in the online survey.

Limitations in Data Collection

1. The study was conducted with limited resources over a period of one month so it was not possible to take a larger sample size.

2. Due to unavailability of district wise database of members of the Teachers' Portal, the researchers had to rely on the database of teachers who have received training on multimedia classrooms (another initiative of a2i) to conduct the telephone interviews. One limitation of using this database was that it was not possible to get a correct representation of female members of the Teachers' Portal. This is because, Bangladesh being a conservative, patriarchal country, it's still perceived here that ICT related trainings are more appropriate for males. As such, more male than female teachers received the training on multimedia classrooms. So although, 35% of the members of the Teachers' Portal are female, this wasn't adequately represented in the sampling.

3. Online survey is still a relatively new concept in Bangladesh, especially in case of self-administered surveys. Majority of the population are unfamiliar with the mechanics of online survey taking. Moreover, internet connectivity issues and high price of internet packages, everywhere apart from in large cities, also inhibits people from using the internet for anything other than basic necessities like, checking emails or doing professional work.

4. Due to time and resource constraints, it was not possible to cover all 64 districts of the country.

RESULTS

Reasons for Using Internet

Teachers mainly use internet to access Teachers' Portal. In addition to that, teachers use internet for searching contents related to their personal use as well as official use. Also, they use social and professional network services (Facebook, Twitter, LinkedIn etc.) and they communicate using emails. Additionally, Teachers search for contents related to their classes using the internet facilities. Furthermore, teachers use internet for reading e-newspapers, watching videos, movies, listening to music and for instant messaging. Figure 1 show teachers' multi-purpose use of internet.

Teachers' Portal — 98.2%
Search engines (for personal use) — 77.6%
Email — 69.4%
Facebook/ Twitter/ Linkedin — 69.4%
Search engines (for content development) — 69.4%
Search engines (for official use) — 67.1%
E-Newspapers — 29.4%
IM — 23.5%
Watch videos/movies/music — 1.8%
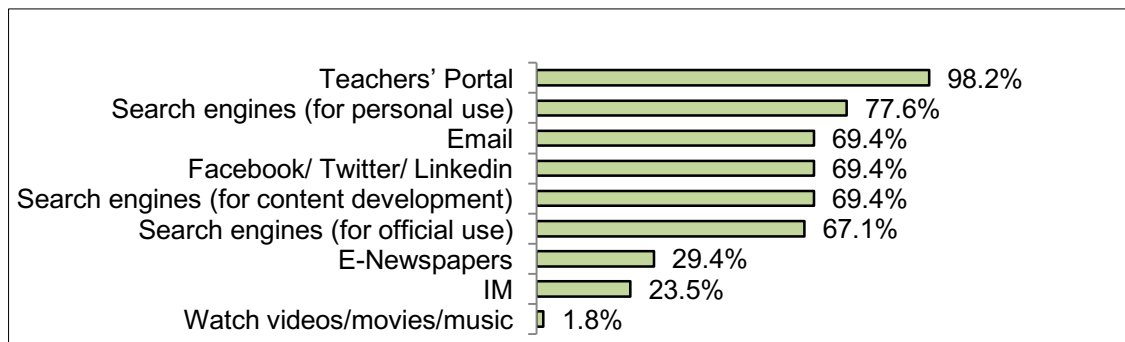
Figure 1. Teachers' use of Internet: Teacher´s Portal is the primary reason (98.2%) for using Internet.

Users of Teacher's Portal

More than half of the portal users (54%) belong to the age group of 25-35 followed by 39% users who belong to the age group of 36-45. As shown in figure 2, the use of Teachers' Portal is dominated by teachers who teach ICT and sciences. More than one-fifth (21.1%) of the Portal users teach ICT at schools followed closely by 19.7% of the users who teach science and 15.9% of respondents who teach mathematics. However, language teaching follows as the next category in order of popularity; Bangla and English.
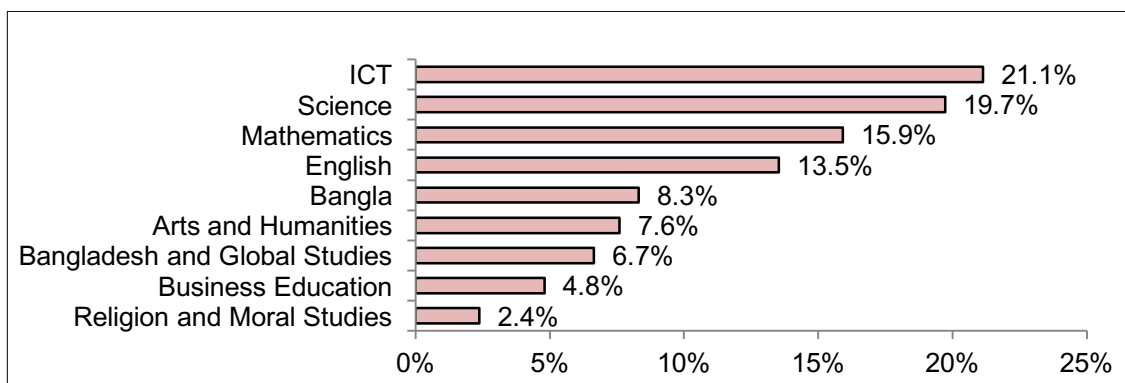
ICT — 21.1%
Science — 19.7%
Mathematics — 15.9%
English — 13.5%
Bangla — 8.3%
Arts and Humanities — 7.6%
Bangladesh and Global Studies — 6.7%
Business Education — 4.8%
Religion and Moral Studies — 2.4%

0%   5%   10%   15%   20%   25%

Figure 2. Use of Teacher´s Portal in relation to subject.

Use of Teachers' Portal

The majority of the teachers (88%) upload their own created contents in the portal and only a small number of teachers (12%) don't upload any content of their own. Moreover, data reveal that a huge number of teachers (80.4%) download contents from the portal which are uploaded in the portal by other teachers. The large extent of sharing online content indicates that the peer interactivity is extensive and is perceived as very useful for teachers.

Teachers use the portal equally both at home (84.6%) and school (87.6%). A few teachers use the portal at cyber cafes (1.2%).

A result that show teachers dedication to their work is that they use Teachers's Portal at home and at night to very high degree: 89.2%. Other times when the Teachers access Teacher´s Portal are mornings (10.1%), evenings (16.7%), and weekends or in government holidays (45.3%).

Why do Teachers Use the Portal

Figure 3 show that about 94.7% and nearly 90.6% of the respondents primarily use the Teachers' Portal to download and upload contents respectively.

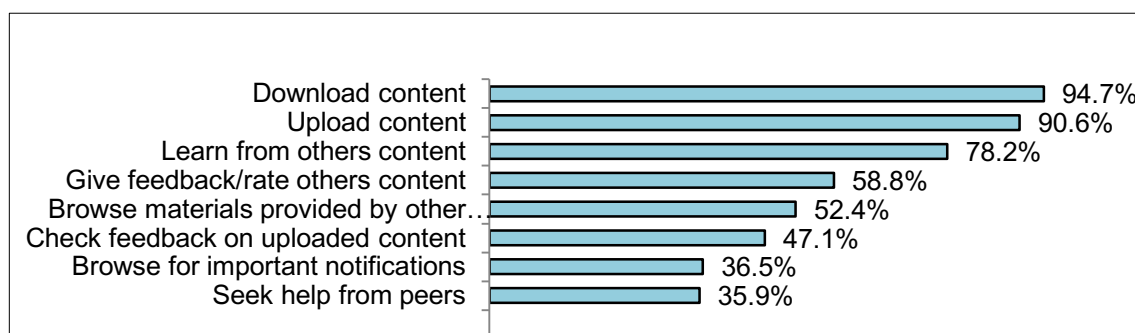| Download content | 94.7% |
Upload content	90.6%
Learn from others content	78.2%
Give feedback/rate others content	58.8%
Browse materials provided by other…	52.4%
Check feedback on uploaded content	47.1%
Browse for important notifications	36.5%
Seek help from peers	35.9%

Figure 3. Primary use of Teacher's Portal.

Besides, they also use the portal to learn from other available contents and to give critical feedback and rate on other teachers' contents. Above and beyond, teachers use the portal to browse materials provided by other institutions, to check feedback on their uploaded contents, to get important notifications and to seek help from other teachers.

Most Effective Parts of the Portal

Approximately 36% of respondents think that 'content' is the most effective part of Teachers' Portal. On the other hand, around 22% of respondents state that 'mutual opinion' is the effective part of teachers' Portal. In contrast, nearly 20% of respondents say that 'tutorial for content' (guideline for making contents) is the effective part of Teachers' Portal. And almost 13% of the respondents mention the blog as the most effective part of Teachers' Portal. Then again, virtually 9% of respondents mention Teachers' Portal's effectiveness as its being an educational website.

Benefits of Using Teachers' Portal

Almost two-thirds of the respondents said that their skills have developed from communicating and sharing over the portal (Figure 4). Over half the respondents said that their multimedia content development skills have improved from viewing other content and receiving feedback on their content. About 51.8% of the respondents said that their teaching has been eased using the portal. In addition to that, a large number of teachers said that they had benefitted through the networking by receiving assistance from and providing assistance to other teachers. Furthermore, nearly 36.7% teachers said they have benefitted in their professional life from the new ideas that have been generated through their association with the Teachers' Portal. According to teachers, they remain updated with the latest reforms in the education sector through this platform. Teachers also count the portal as a networking platform for the teachers' community. Moreover, teachers enjoy professional development through content sharing and learning with the help of this portal. Additionally, teachers' presentation skills and computer skills have been improved using this platform. Likewise, there is a competitive learning environment in this portal which makes teachers feel a greater social standing as teachers.
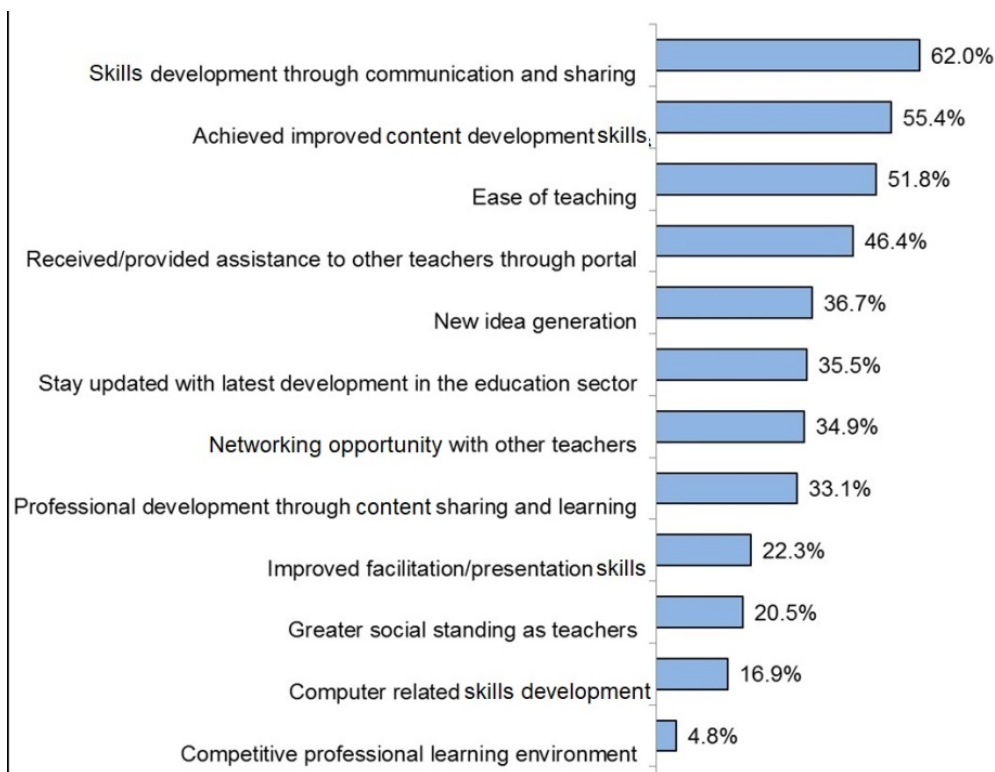

Figure 4. Benefits of using Teacher's Portal (%, multiple choice answers).

Uploading teachers' own contents in Teachers' Portal helps them in several ways. The Teachers' Portal improves their creativity and efficiency in content creation according to 29.1% of the teachers. The respondents also reports that it improves their self-confidence and self-satisfaction (23.3%). About 16% of respondents think that uploading content in Teachers' Portal increase teachers' computer related knowledge. Approximately 13% of the respondents assume that uploading content in Teachers' Portal develop teachers' overall professional skills. Almost 9.3% of respondents mention that uploading contents in Teachers' Portal keep them updated with

knowledge. Collaboration and co-creation is another outcome of uploading own content in Teachers' Portal, it is the opinion of 9.4% of respondents'. Downloaded contents from Teachers' Portal help teachers in preparing class lessons. Then again, it encourages students' active participation in classrooms. Moreover, respondents believe that downloading content from Teachers' Portal develop teachers' professional skills. Again, downloaded contents help teachers to manage their time in lesson preparation and content making. In addition to that, these contents are easy to present in classes. Furthermore, teachers are benefited by downloaded content with new and innovative idea development. Likewise, downloaded content help teachers to manage the class easily, as shown in figure 5.
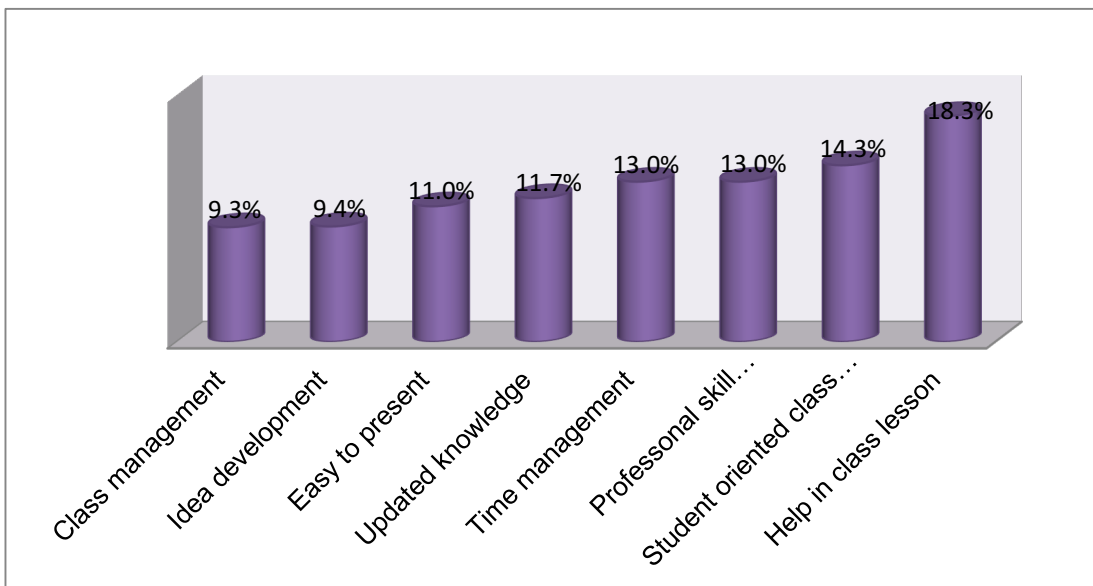
Figure 5. *Benefits of downloaded contents*

Another useful feature of the Teachers' Portal is the Teachers' Blog. Approximately 31% of respondents said that they use the blog to motivate their colleagues on the portal and to share constructive opinion. Around 22% of respondents said that they use blog for educational contents while 12% of respondents said that they seek advice on the development of their teaching techniques. Additionally, about 12% of respondents use the blog to write about developing good lesson plans. Finally, educational policy related blog posts is an area of interest for about 8.2% of respondents.

Preferred Contents of Portal

Most of the teachers (28.8%) prefer video contents for their lessons as students find them more interesting and they deliver messages quicker than any other method. About 20% of teachers prefer presentations made on Microsoft Office and animations respectively to deliver lectures in class. Document and magazines are the least popular options, preferred by about 3.2% and around 0.8% of teachers respectively, see figure 6.
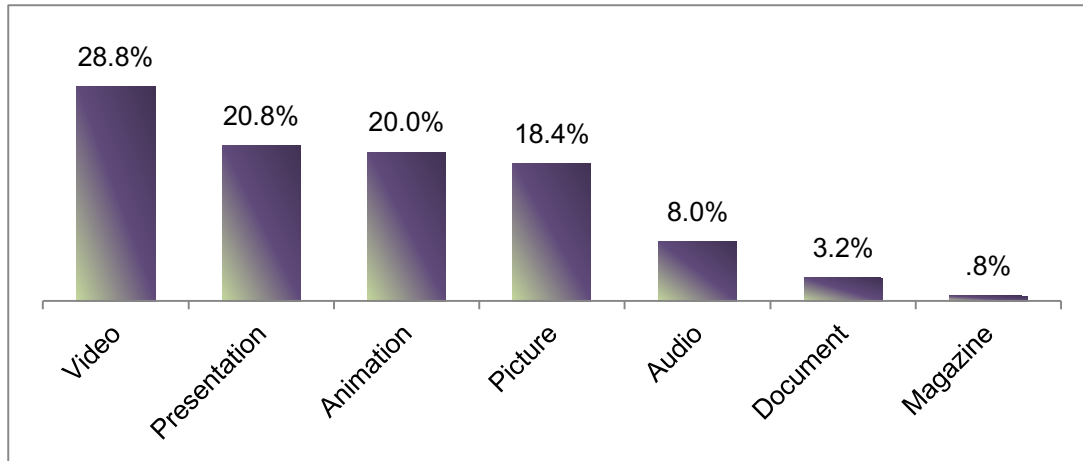
Figure 6. *The type of content preferred by teachers*

The type of content preferred by students are shown in Figure 7. About 39% of students prefer video lessons while around 26% and 17% of students prefer animation and pictorial lessons respectively. Magazines are the least popular medium among students (0.8%). Students like multimedia content because it is more interesting and visually attractive. They believe the contents are easily understandable and this increase their participation in classrooms. It is interesting to note that both teachers and students pretty much agree on how content best is presented for teaching and learning. Students report that with material from Teachers´ Portal it is more attractive, interesting and easy to learn and that participation increases.
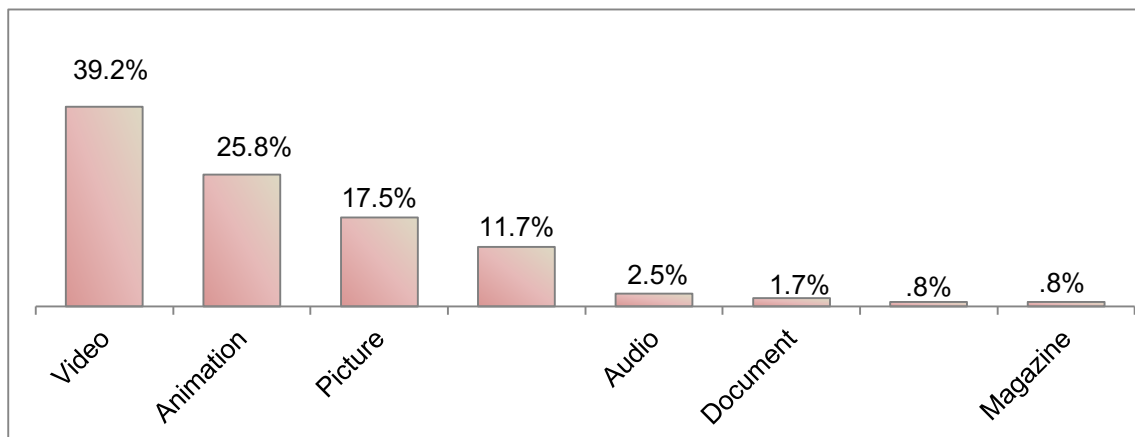

Figure 7. The type of content preferred by students.

Impact of Contents on the Teaching-Learning Process

The respondents mentioned that multi-media content based lessons raise the chances of students' greater participation in classrooms. Furthermore, they said that the increased participation in class work is reflected in greater turn-in of better quality homework assignments. Besides, it also raises students' concentration in classroom activities. Also, teachers now engage students in more group

work and use of multi-media based lessons helped them to manage class time more efficiently, thereby making them more productive. Moreover, they have noticed improvement in students' creativity since they started taking classes using digitally enhanced lessons. The use of technology in classrooms has made classroom interactions more flexible and effective and improved teacher-student relationship as well.
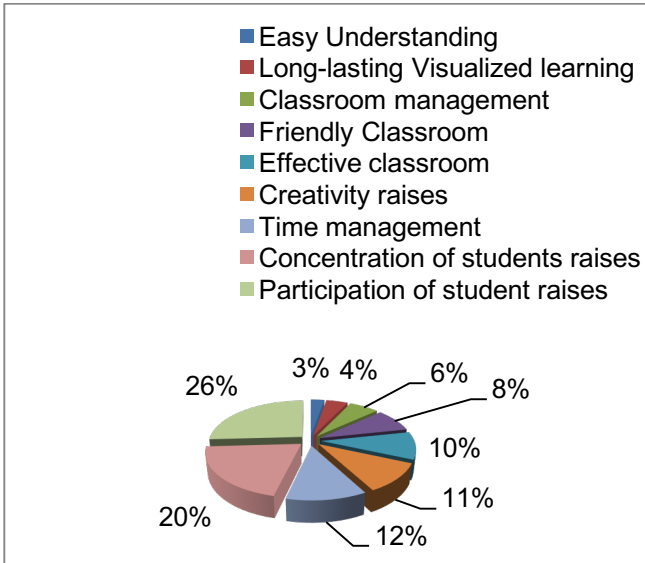

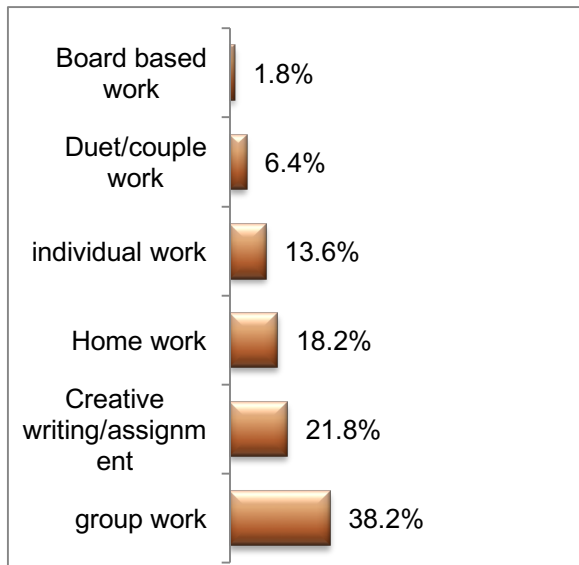
Figure 9. Impact on teaching and learning process

Figure 10. Types of Participation increased.

Problems Associated with the Portal

Internet connectivity is one major challenge regarding widespread use of the Teachers' Portal. Slow internet speed, poor quality contents, high cost of Internet are some of the problems mentioned by the respondents. Close to half of the respondents (48.3%) reported that Internet connectivity is a big challenge. Insufficient availability of equipment (laptop, internet modems, etc.) is another problem stated by 18.6% of respondents. Power failure and technical issues are problems for 10% of respondents. One interesting finding is that around 32% of respondents don't face any problems when teaching using multimedia based contents retrieved from Teachers' Portal. However, nearly 34% of teachers said they face problems in classroom management when they teach using multimedia based content. Again, 12% of the teachers find the process of making content time-consuming while 9% of the teachers feel use of animated content distracts students.

Approximately, 38.3% of respondents recommended addition of a video chatting feature to the portal while 35.3% of them recommended adding a live scroll (a banner with rolling updates, now added on the portal). Additionally, training manuals and guidelines should be made available on the portal. Furthermore, 26.3% of the respondents recommended making the portal webinar friendly. Adding instant messaging, grouping, email notification, training related links and unique font output are other key features of Teachers´ Portal which the respondents believe would be beneficial for the users.

DISCUSSION

The Teacher' Portal is an example of effective integration of ICT in education, which is the battle cry of the teaching and learning revolution of 21st century (Jung 2005, Kozma 2005, Varis 2011). The government of Bangladesh created this central portal connecting teachers from all levels of education since there is no greater demand in society today than enabling lifelong learning and continuous professional development of teachers with rapidly expanding knowledge and modern technology (Borko 2004). The portal, therefore, is working to ensure a common goal of the education system in Bangladesh, which is empowering teachers through the use of ICT.

The respondents who use the Teachers' Portal at homes, use it at night and in the weekends or in government holidays, which means that they are very much motivated to use the portal. The motivation of teachers as well as contextual support is central for implementing any kind of educational innovation in any country as lack of it can let innovative government initiatives go down (Webster 2006).

The primary feature of the portal is subject based multimedia digital contents which happen to be the most effective part of the portal. Teachers prefer video contents for lessons as students find them more stimulating and for their conveying messages quicker than any other method. It stimulates students' creativity and ensures students' participation in classrooms involving them in more activities (e.g. group work, pair work). Again, the contents help teachers to manage their time in classrooms as well as in lesson preparation and content making. The use of technology in classrooms has made classroom interactions more effective and improved teacher-student relationship by ensuring student-centered classroom (Fairman 2004).

The teachers generate innovative and creative ideas through collaborative and co-creative networking of this portal which results in their self-satisfaction. The teachers upload their own created multimedia digital contents in Teachers' Portal and download contents from the portal which are uploaded by others. They can edit others' contents after downloading and can use in their classes. Teachers look for help and opinion from other teachers in making contents and planning lessons through blogging in this platform. They give critical and constructive feedback and

rate on other teachers' contents. Thus, the teachers become self-confident, efficient, and ICT skilled. Moreover, the teachers remain updated with the latest reforms in education sector through different features like blogging of teachers' portal (Zandi, Thang, & Krish 2014).

Since appreciation is crucial for the sustainability of any educational reform (Jhurree 2005), the portal undertook recognition strategy on content development. For example, at the Teachers' Portal there are weekly content competitions. Teachers evaluate other teachers' contents, and the best content maker's name is announced on the portal. It is a recognition for teachers, who show and share their skills via quality contents. The content is evaluated based on the TPACK framework of Koehler and Mishra (2009); successful integration of technology, pedagogy, and content.

The teachers' portal benefits a large number of teachers overcoming the constraints of time and infrastructural facilities in face-to-face teacher training. For instance, there are 927,880 teachers teaching at 143,356 general, madrassa and vocational educational institutions in Bangladesh. In stark contrast, there are only 210 teacher training institutions in Bangladesh (BANBEIS 2014). The teacher to trainer ratio in the country is 357:1. Due to resource constraint, it was possible to provide teacher training to only 52,013 teachers from June 2013 to January 2015 (tqi2.gov.bd). The situation is the same every year. Majority of the teachers, especially rural teachers and other traditionally marginalized groups, like female teachers, are left out of the formal training system year after year (Brown 2013). Even with maximum utilization of resources, it takes five to six years to bring new knowledge to every teacher while knowledge is created and replaced every moment. The portal is playing an active role in connecting teachers across the country with a focus of teachers' professional development through peer-learning, co-creation, and collaboration.

Even though the portal is playing a significant role in connecting teachers, there is always a need for improvisations with the ever-changing world. For example, the respondents believe the portal needs some new features like: adding video chatting, webinar option, separate tab for training, live scroll update, instant messaging, grouping, email notification, training related links, and unique font output. Additionally, training manual and guidelines should be available on the portal. All these features are essential to make a platform active for e-training.

The use of Teachers' Portal is dominated by teachers who teach ICT and sciences. Additionally, old teachers are less likely to use the portal. Some measures should be taken to make the technology more inclusive for all teachers. For instance, special training for older teachers (Mahmud, & Ismail 2010) might be helpful. Furthermore, awareness and capacities should also be created among non-science teachers to use technology effectively.

Even though the portal in empowering teachers, there are some problems, which are affecting the teachers to make the best out of this portal. For example, internet connectivity, slow Internet speed, power failures, high cost of Internet, unavailability of equipment, and other technical issues, which are the common weaknesses in ICT industry in Bangladesh (Netherlands Bangladesh Business Platform 2014) hamper the use of this portal effectively. Another major obstacle is that the teachers find the process of making content time-consuming. Again, apart from the complain of insufficiency of relevant and quality multimedia contents in Teachers' Portal, some teachers complain that the use of animated content distracts students from the topic. In this regard, a study on the quality of multimedia digital content of Teachers' Portal should be initiated. Again, to resolve these issues, instead of relying quite heavily on the teachers' ability to successfully weave technology into the teaching-learning processes, ensuring a sound educational leadership, administration, and proper learning environment should be fostered to make the portal successful.

CONCLUSION

The effective integration of ICTs into the educational system is a complex, multifaceted process that involves not just technology but also curriculum, pedagogy, institutional readiness and teacher competencies. Before Teachers' Portal, there was no singular platform connecting such a large number of teachers centrally. Although, it may seem only a fraction of the total teachers have become associated with the portal so far, however, with more and more teachers joining every day, and the government's policy decision in this regard, suggests all teachers will become connected through the Teachers' Portal within a few short years. From the findings of the study, it can be concluded that the Teachers' Portal is an indispensable platform that is facilitating effective integration of ICTs into the educational system from two wide angles; by ensuring teachers' greater access to pedagogical content and improving teachers' skills. Ensuring teachers' professional development, the Teachers' Portal is creating a learner-centered environment within the classrooms where the ultimate beneficiaries are the students. Still, teachers face infrastructural problems accessing the portal. Again, non-science and older teachers are less likely to use the portal. To increase the effectiveness of the portal, some features, such as chatting, separate tab for training, live scroll update, webinars options should be included to ensure its prospects of being used as an e-training platform.

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