DIGITALIZATION OF EDUCATION SYSTEM AND TEACHER EDUCATORS' COMPUTER SKILL IN BANGLADESH

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Abstract:

This study examined how teacher educators' perceive the incorporation and use of computer technology resources in Teachers' Training Colleges in Bangladesh. This study encompasses the thorough investigation of teacher educators' *computer skills* by using the valid and reliable instruments. The study finally examined whether any differences towards computer skills by gender exists. The results revealed that the teacher educators' possessed moderate level of skills. Although there is a statistically significant differences between male and female towards computer skills.

Introduction:

Technological and computer skills of teacher educators are important dimensions for digitalization of education (Yasemin Gulbahar, 2008). To digitalize the education system, the ministry of education in Bangladesh started distribution by 20,000 computers in secondary level educational institutions (MOE, 2010). Distribution of computer is not enough to digitalize education systems, because integration of computer in education is much more complicated than providing computers (Afshari, et al 2009). One of the biggest obstacles to digitalize in education system is the lack of technology training in teacher's education programs (Baylora & Ritchieb, 2002). Thus the government of Bangladesh are providing training in computer applications to the teacher educators for digitalizing the education system (MOE, 2010).

Literature Review:

There are 188 teachers' education institute in Bangladesh (Government and non government, both) including Primary Training Institute, Teachers' Training College, Technical Teachers' Training College, Vocational Teachers' Training Institute, Physical Education College, Higher Secondary Teachers' Training Institute and Madrasah Teachers' Training Institute (BANBEIS, 2010). ICT policy of Bangladesh endorse the need for general introduction of ICT training in public and private educational institutions as a precondition for producing skilled ICT manpower. The Government of Bangladesh has planned to develop an ICT stream in the secondary levels of education. Mobile technology is limitedly introduced in teachers' training colleges to train remote school teachers by mobile learning to make an effective mode for teacher training and improvement in classroom practice. It is also may be a suitable mode to reach rural and remote teachers, including women and disadvantaged groups. As well as education administrator also can gate benefits by mobile-learning (Pouezevara & Rubina Khan 2007).

Teacher educators' computer knowledge and skills are key factors of adopting it as a teaching tool. The computer skills usually consist of basic to advanced knowledge in word processing, presentation, and spreadsheet applications. In many U.S. states, students are required to demonstrate computer proficiency early in their educational experience by means of passing an assessment test (Grant, Malloy & Murphy 2009).

Teachers' poor ICT competence and lack of confidence in using new technologies in teaching are two very significant determinants of their levels of engagement in ICT. These are directly related to the quality and quantity of teacher training programs (Husa, 2008). Because an instructional technologist is expected to have effective communication skills to produce opportunities for working together with the other shareholders in the

institution as well as with those from other institutions. In order to 22 make education more effective with the integration of technology instruction should be designed properly. For this purpose, instructional technologists are expected to be experienced in instructional design (Izmirli & Kurt, 2009).

Technology in education is a comparatively new phenomenon; most expert teachers are not technologically skilled when they entered the profession. Yet to effectively expand the range of instructional opportunities that can be offered to students, teachers must reach and maintain a certain degree of technological competence but when these teachers are provided the opportunity to learn new technology skills and techniques, it appears that they avail themselves of the opportunity with a resulting increase in their competence (Amy L. Baylor & Donn Ritchie, 2002). Because computer literacy has been described as a basic skill required for success in many academic areas and career fields (Campbell 1990 cited Adebowale, Adewale and Oyeniran.2010). Previous study (Guclu 2010) showed that having a personal computer or having the possibility to access computer from the lab at the faculty that they attend affected students' computer skills in a positive way. Students' computer skills increase, their success in web-based courses increase (Rakap 2010).

Teachers' lack of computer skills and knowledge, in particular, make them uncomfortable in front of a class and add extra time for preparing teaching materials and resources. This indicates that teaching with computers requires more time and effort from teachers (Park & Son, 2009). Konan (2010) studied with teachers' skills depend on different variable such as gender, experience and educational level. After investigation researcher found that the computer literacy level of teachers' is medium.

The results also indicated that most of the participants had moderate and great confidence. Their level of confidence in the use of computer ranged from moderate to high. It can be assumed that the participants had confidence in their ability to use computers. Most of the teachers had moderate levels of computer competence. However, some of them had high levels of the relevant competence and were able to teach others how to perform a task by using computers. This suggested that the majority of the

participants could perform a task with assistance and complete the task by using computers (Sa'ari, Luan & Samsilah Roslan 2005).

The findings also indicated that student teachers reported a statistically significant higher technology competency in learning activities with technology, and thereafter integrating them with appropriate inquiry-based pedagogy in classroom instruction (Angeli, 2005). To identify the computer competence of prospective class teachers in Turkey, a survey was administered among prospective class teachers, the ratings of their level of competence showed that they perceived moderate level of competence (Deniz, 2007).

To determine computer skills there are various factors like gender, age, and administrator's role. Konan (2010) studied with teachers depend on different variable such as gender, experience and educational level. To identify the skill level of male and female a course was conducted and found before taking the course there was no significant difference in the self ranking of computer skills between male and females with both groups ranking themselves as average. By the end of the course, females' self-assessment of their computer skills improved significantly and their scores were significantly higher than the scores of male (Lenard, Wessels & Khanlarian, 2010). Age is a noticeable factor for computer technology. The previous study that the younger teachers agreed that information literacy was mostly concerned with ICT while teachers in the older age groups. The majority of teachers was young and had been teaching for less than 10 years, connected information literacy only with ICT. Interviewees gave several reasons given for not explicitly teaching information literacy skills, including time factors (Probert, 2009). Konnan (2010) postulated by saying that after investigation researcher found that the computer literacy level of male teachers was higher than that of female teachers.

Research Methods:

The main purpose of this study is to investigate how the teachers of teachers' training college in Bangladesh are prepared to incorporate digital technology in their class room.

The specific objectives of this study are to investigate the teacher educators' level of skills and to examine the differences of computer skill by gender.

The total number of participant was included for this study is entire 75 teacher educators from three teachers' training colleges (Teachers' training college, Rajshahi; Teachers' training college, Pabna and Teachers' training college, Rangpur) in Rajshahi division in Bangladesh. The measurement tools of the study deployed in this regard were a slightly modified Computer Attitude Scale (CAS) by Loyd and Gressard (1984), the question of first section was constructed as closed ended and rest of three sections of the questionnaire was constructed by four points Likert type scale. The selected instrument has been found to be a reliable instrument to measure skills towards computer among teacher educators. For this research, researcher sent instruments to the respondent to collect data through e-mail because of respondent are staying in different districts in Bangladesh and it is difficult to collect data face to face. Researcher administered his survey by sending instruments, a letter of consent was provided together with an introductory letter for the participant to read. After collecting the data from the questionnaires, some procedures have been done such as checking the data for accuracy. Besides that the questions were being coded to enable for analysis using Statistical Packages for the Social Science (SPSS version 15).

Result:

To measure the level of teachers computer skills, mean and standard deviation was used. The average skill of teacher is 2.36, where 2 is representing not very well and 3 for well so the level of teacher educators' skills is moderate. Many teacher educators in this study pointed that they are not very well skilled in computer technology. The highest level of skill of teachers is in Writing papers, report, letters or other documents (2.83) and sending message or attachment via e-mail (2.83) so they are nearly well skilled in these two items. The second highest skill is found information on the World Wide Web (2.70) it is good thing that they are skill in finding information from web. But they are not very

well skilled on author multimedia courseware (1.98), Write and 'debug' computer programs (2.02) and Computer assisted instruction (CAI) (2.04) although two items from these three are much related to educational technology these two are first and last item. The most used item in instruction is *make slides for computer-based presentation,* but in this study found that the mean of this item is only 2.51 so they are not also well skilled on this function although it is very important for lesson presentation.

Table 4.4: Teacher educators' level of computer skills

No	(How well can you perform the following tasks on a computer?)	N	Mean	SD
1	Writing papers, report, letters or other documents	46	2.83.	.88
2	Create data base	46	2.22	.81
3	Search library database	46	2.43	.94
4	Prepare spreadsheets (grade, budget)	46	2.28	.86
5	Do statistical data analysis	45	2.22	.80
6	Draw or paint	46	2.28	.86
7	Make slides for computer-based presentation.	43	2.51	1.06
8	Scan document or images	46	2.48	.94
9	Send message or attachment via e-mail	46	2.83	1.00
10	Write and post document on the world wide web	44	2.30	.86
11	Find information on the world wide web	46	2.70	1.00
12	Write and 'debug' computer programs	46	2.02	.75
13	Author multimedia courseware	45	1.98	.90
14	Computer assisted instruction (CAI)	46	2.04	.87
15	Printing Document	46	2.39	1.04
16	Upload files to the WWW	46	2.37	.95
			2.36	

*1-Not well at all 2-Not Very well, 3- well & 4-Very well

Difference of Computer Skills by gender: The result of table 6 shows that the Leven's test indicates that it is not significant so equal variance is assumed. The t-test is significant t (37) =2.72, p<.05 this is why this result is able to reject null hypothesis and able to accept alternative hypotheses. There is a significant difference between male and female towards level of computer skills, the skills mean of male is higher than the skills mean of female. The skills mean of male is 2.58 and the skills mean of female is 1.84. So it can be justified that the male are more skilled in computer technology than female.

Table 4.7: Difference of teacher educators' skills by gender

Levene's Test for equality of variances					t-test for Equality of Means				
Skills	F	Sig.	Gender	N	Mean	SD	t	df	p
Equal variances assumed	.04	.85	Male	30	2.58	.71	2.72	37	.01
			Female	9 1	.84	.75			

Findings and Recommendations

The findings that were gathered from the data analysis are presented subsequently. In this study teacher educators' computer skills levels was examined. The result of measuring teacher educators' level of skills, it indicates that their level of skills is moderate (2.36). They hold moderate level of skills in all item of the instrument except *authoring multimedia courseware*, because this item is related to a team work, a single or individual teacher educator can't develop a multimedia courseware. This result supported the result of Konan (2010). This researcher also found that the computer literacy level of teachers' is medium as being identified by Sa'ari, Luan & Roslan (2005). They said that Most of the teachers had moderate levels of computer competencies. But this result is in contrast with the result of Angeli, (2005) as he indicated that student teachers reported a statistically significant higher technology competence in learning activities with technology. The findings of this study and the findings of Sa'ari, Luan & Roslan (2005), which werecarried out in Malaysia, have been the same because, Bangladesh and

Malaysia both are developing country and the locations of these countries are in south and south-east Asia region. Their respondents were in-service teachers and teacher educators but the respondents of Angeli (2005) were pre-service teachers. So the result might have been affected by these factors.

To investigate the difference between male and female in the level of computer skills unpaired sample t-test was administered and found significant difference between male and female in the level of skills of teacher educators. The skills level of male teacher educators is higher than the female teacher educators. This result is supported by Konan (2010) as found in a study that the computer literacy level of male teachers was higher than that of female teachers. But Lenard, Wessels & Khanlarian, (2010) stand against these findings as they found that females' self-assessment of their computer skills improved significantly and their score were significantly higher than the score of male.

In order to increase the computer skills levels of teacher educators training should be provided. This study involved only three government teachers' training colleges out of 188 teachers' training institute in Bangladesh. So it is difficult to generalize on teacher educators in Bangladesh. So there is a scope for another research with a large population with the effect of age and having computer at home. Future research should focus on effective ways of providing professional development related to ICT integration, perhaps using the current study as a guideline.

Conclusion and Recommendation

In order to conclusion, teacher educators in Rajshahi division in Bangladsh display moderate level of computer skill. Gender is a factor on effects of computer skills, computer skills are dominated by male teacher educators. There are also practical implications to this study. So staff development and training programs could be provided. The innovative nature of technology, as it continues to change and expand, will require

teachers to adapt and change the way they approach teaching and learning. To overcome this shortage government should take integrated training program for all teacher educators in Bangladesh not only for teacher educators of Government teachers' Training Colleges.

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