BARRIERS TO THE EFFECTIVE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN DISTANCE EDUCATION

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ABSTRACT

Information and communication technologies (ICTs) have revolutionized all aspects of human life on this planet and these have created unprecedented challenges and unparallel opportunities for advancement on this globe. Teachers are leaders and nation builders, hence, prepare generations to meet the accelerating challenges created by ICTs. The study focused upon the problems and issues pertaining to the effective use of ICTs in teacher training in distance education.

The study was descriptive in nature therefore, survey was considered appropriate for data collection. A sample of 50 teachers and 200 students of BEd, MEd and MA Education were taken randomly in 2012. Data were collected via a questionnaire and top 10 barriers were solicited from the respective respondents. Data were analyzed qualitatively and quantitatively as well. The results of the study arrayed lack of training, power failure, lack of technical support, Lack of peer support, slow connectivity, lack of quality software, lack of quality hardware, lack of software, lack of knowledge and lack of confidence as top 10 barriers among tutors. Sequence was changed among students as lack of hardware, power failure, lack of quality hardware, lack of software, lack of quality software, lack of training, lack of technical support, lack of peer support, slow connectivity, and lack of confidence were arrayed as top 10 barriers/problems. Conclusions and recommendations were made in the light of findings.

Key words: Distance Education, Teacher Training, ICTs, Barriers

INTRODUCTION

Education has got paramount importance in the 21st century due to emergence of globalization and increasing global competition. Doubtless to say that in this fast changing and competitive world, education and technology are the master keys for respectable survival, growth and development. ICTs have played vital role in the advancement of teachers’ professional development throughout the world and these are helpful for continuing professional development of teachers. The current and emerging communication and information technologies provide unique opportunities to continue the professional development of teachers and other educators. (UNESCO, 2005)

National Education Policy 1998-2010 (1998, p.88) has given special emphasis for the integration of ICTs in education in these words, “The investment in information technology infrastructure and its network will bring our institutions of higher education on the world map”.


ICTs can play a vital role in the professional development of teachers and administrators, consequently in enhancing quality of education. To improve education in Pakistan, the needs of our teachers, head teachers, and administrators must be addressed holistically. ICT can enhance teaching quality by supporting and reinforcing the use of innovative teaching practices. It can allow educators to access a wide array of materials, reducing isolation and permitting peer-exchanges (GOP, 2003).

**TEACHERS PROFESSIONAL DEVELOPMENT AND ICTs**

In this information era technological skills are essential for teachers’ professional development. These skills are essential for every teacher training programme because other skills can be enhanced through the usage of information and communication technologies. Teachers have not to attain only basic skills of ICTs for individual development but they should also acquire these skills for daily life requirements of students. It is not only necessary to know the basic principles of ICTs and the use of ICTs for personal development but also to cope with the daily life contexts of students and teachers. Following skills are necessary for teachers in this era:

- It is necessary for all teachers to be able to use ICT for their own purposes and to help students to use ICT.
- Word processing is necessary for teachers in all subjects as it is helpful to make documents (e.g. letters, tests and assignments).
- Spreadsheets are very useful for many teaching and personal uses: preparing class lists and mark sheets etc.
- Most information systems in use today (e.g. school administration) are based on the principles of databases, and so an understanding of databases is useful for teachers.
- Using emails and searching for information on the Internet is important for teachers.
- Teachers in all subjects need to be role models with respect to ICT issues.
- It is a part of a teacher’s professional development and attitude to know about changes with respect to ICT in the profession. ” (UNESCO 2005)

ICTs are not only beneficial during teaching learning process but also empower teachers by enhancing their competencies and administrators in effective management and administration. The Beijing Declaration of the E-9 Project on ICT and EFA (August 2001) reiterated its commitment to raise the quality of education through using Information Communication Technology (ICT) and better training of teachers and administrators (UNESCO 2003) . ICTs based programmes are very interesting and motivating for the learners as they are engaged in these programmes keenly. These programmes facilitate them in the acquisition of basic skills which ultimately increase the quality of teacher training programmes. ICTs can enhance the quality of education in several ways: by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing teacher training (UNDP-APDIP, 2002).

**BARRIERS TO THE UPTAKE OF ICTs BY TEACHERS**

There are several barriers in the proper use of ICTs and their nature varies from area to area for example lack of availability of paraphernalia is the major problem in developing countries while level of their use is the key concern for developed countries. Nevertheless
key problems are lack of hardware, lack of quality of hardware, lack of training, lack of software, lack of quality of software, lack of technical support, lack of peer support, lack of time, lack of organization, lack of confidence lack of funding, connectivity problem and power failure etc. (BECTA, 2004)

Regarding personal computers (PCs) there are many people especially the students who cannot easily purchase the computer and its related accessories. No doubt designing and implementing successful teacher professional development programmes which employ ICT is neither easy nor inexpensive. (Carlson and Gadjo (2002)

In some researches it is found that in pre-service phase some teachers feel frustrated during the use of these ICTs. Beggs (2000) pointed out that new technologies, when first encountered, bring mixed feelings of anxiety, fear, as well as frustration, which sometimes lead to not using the new technologies. I have observed similar reactions among tutors in the teacher training colleges, where the training of tutors did not fully materialize because the trained tutors who were expected to train others were not knowledgeable enough to competently train others. Studies in the UK identified three main obstacles that limited ICT uptake by student teachers: student access to computers, the ICT policy adopted by initial teacher training providers as well as lack of encouragement for students to use ICT in teaching practices (Murphy 2000).

A recent study in Singapore (Teo, 2006), based on the observations of ICT-mediated lessons and face-to-face interviews with teachers, ICT heads-of-department and school principals, identified six major barriers to teacher ICT-integration: (a) inadequate appointment of technical support staff, (b) inadequate appointment and training of student ICT helpers, (c) lack of sufficient time for teachers to prepare for ICT-mediated lessons, (d) insufficient collaboration among teachers in preparing ICT-mediated lessons, (e) lack of support provided by school leaders in addressing teachers’ ICT concerns, and (f) insufficient training, demonstrations or advice for teachers on how to incorporate ICT into classroom instruction.

OBJECTIVES OF THE STUDY
The study sought to achieve the following main objectives:

- To explore the current utilization of ICTs in teacher training institutions of Pakistan.
- To evaluate the role of ICTs in teachers’ professional development.
- To investigate the problems in the use of ICTs in teacher training institutions of Pakistan.

RESEARCH METHODOLOGY

Population and Sampling

The population of the study consisted on Institutes of Education and Research (IERs) and Departments of Education in public sector universities of Pakistan. The sample of the study consisted on 50 academicians and 300 students of B.Ed, M.Ed, MA Education, and MS leading to PhD Education drawn through stratified random sampling technique.
**Instruments and Their Development**

Keeping in view the nature of the problem, descriptive i.e. survey type study was carried out to collect the data. Therefore, to elicit the opinion of the respective respondents, two questionnaires were constructed:

- Questionnaire for Students
- Questionnaire for /Teachers/academicians

All the statements of the questionnaire were close-ended except the last one, so that respondents could write a free response in his/her own words.

**Validation of the Questionnaires**

Questionnaires were pilot tested on 25 students and 5 academicians. After incorporating observations given by the students and academicians, the questionnaires were finalized.

**Administration of Research Tool**

After finalizing, the questionnaires were administered through prepaid postage and e-mail to the respective respondents but where applicable these were personally handed over to the respective respondents. 37 out of 50 from academicians and 191 out of 300 from students were returned back.

**Data Analysis**

The data collected through questionnaires were analyzed by using mean and percentage formulas.

**Table: 1**

**Utilization of ICTs**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Item</th>
<th>Respondents</th>
<th>Always N</th>
<th>%</th>
<th>Often N</th>
<th>%</th>
<th>Seldom N</th>
<th>%</th>
<th>Never N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reading and sending e-mails</td>
<td>Teachers</td>
<td>21</td>
<td>38</td>
<td>28</td>
<td>50</td>
<td>07</td>
<td>12</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students</td>
<td>67</td>
<td>22</td>
<td>106</td>
<td>35</td>
<td>84</td>
<td>27</td>
<td>39</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>Writing documents (Word processing)</td>
<td>Teachers</td>
<td>19</td>
<td>34</td>
<td>33</td>
<td>59</td>
<td>04</td>
<td>07</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students</td>
<td>49</td>
<td>16</td>
<td>151</td>
<td>49</td>
<td>65</td>
<td>21</td>
<td>26</td>
<td>08</td>
</tr>
<tr>
<td>3</td>
<td>Creating Spreadsheets (excel etc.)</td>
<td>Teachers</td>
<td>---</td>
<td>---</td>
<td>10</td>
<td>18</td>
<td>32</td>
<td>57</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>98</td>
<td>32</td>
<td>153</td>
<td>50</td>
</tr>
<tr>
<td>4</td>
<td>Creating presentations (PowerPoint)</td>
<td>Teachers</td>
<td>07</td>
<td>12</td>
<td>28</td>
<td>56</td>
<td>16</td>
<td>29</td>
<td>05</td>
<td>09</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students</td>
<td>---</td>
<td>---</td>
<td>23</td>
<td>08</td>
<td>119</td>
<td>39</td>
<td>158</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teachers</td>
<td>24</td>
<td>43</td>
<td>27</td>
<td>48</td>
<td>05</td>
<td>09</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>
It is evident from table 1 that teachers are most fluent in the use of e-mails as more than 80% teachers are creating, reading or sending e-mails often and always. While more than 57% students are also using their e-mails often and always. Anyhow 27% students are rare user of e-mails and it is a matter of concern that about 13% students have never used e-mails. Similarly more than 90% teachers are using word processing frequently. Students are slightly less inclined (65%) towards the use of Microsoft Word. Exercise of spreadsheets (MS Excel) is not up to satisfactory level among teachers as 18% teachers are frequently using this technology and 57% are using this technology rarely. Perhaps teachers use MS Excel only during the preparation of result. This practice is very poor among students as none of the students use this technology frequently and only 32% students use this technology rarely. Teachers are fluent in creating and presenting their lectures through power Point while as more than 68% teachers are frequently using MS Power Point. Students are less inclined towards the use of MS Power Point as only 8% are frequent user and more than 50% have never used this technology. Both teachers (more than 90%) and students (56%) are fluent user of online/digital library.

In ranking of teachers’ frequent utilization of these technologies, sequence was;
1. Use of word processing (93%)
2. Use of online/digital library (91%)
3. Use of e-mails (88%)
4. Use of Power Point (68%) and
5. Use of spread sheets (only 18%)

While ranking regarding the frequent use of these ICTs among students was;
1. Use of word processing (65%)
2. Use of e-mails (57%)
3. Use of online/digital library (56%)
4. Use of Power Point (8%) and
5. Use of spread sheets (not frequent user)

Table: 2

<table>
<thead>
<tr>
<th>S. No</th>
<th>Item</th>
<th>Respondents</th>
<th>SA</th>
<th>A</th>
<th>UNC</th>
<th>DA</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Lack of hardware</td>
<td>Academicians</td>
<td>11</td>
<td>23</td>
<td>2</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students</td>
<td>95</td>
<td>91</td>
<td>2</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>7</td>
<td>Lack of Quality hardware</td>
<td>Academicians</td>
<td>11</td>
<td>21</td>
<td>3</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students</td>
<td>76</td>
<td>103</td>
<td>5</td>
<td>6</td>
<td>--</td>
</tr>
<tr>
<td>8</td>
<td>Lack of training</td>
<td>Academicians</td>
<td>21</td>
<td>16</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students</td>
<td>128</td>
<td>57</td>
<td>3</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>9</td>
<td>Lack of software</td>
<td>Academicians</td>
<td>16</td>
<td>17</td>
<td>4</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
It is evident from table: 5 that dominant majority of both academicians and students (more than 95%) are of the view that lack of hardware and quality hardware is the major problem in the use of these ICTs. Likewise dominant majority of both academicians and students (more than 80%) are agreed that lack of software, quality software, technical support, peer support, limited time of computer labs and power failure are the barriers to uptake these ICTs. Students are of the view that lack of organization is also a problem (61%) while academicians are of the view that this is not an important problem (49%). While 100% academicians and 97% students agreed with the statement that lack of training is the key problem for them.

CONCLUSION

Use of ICTs is an effective pedagogical tool and doubtless to say that in this IT era it is imperative for teachers to use ICTs. ICTs play critical role in enhancing knowledge competency, making teaching learning process more effective and enhancing teaching skills is positive. The most common uses of ICTs among teachers and students in teacher training institutions are; e-mailing word processing, online library, academic studies and getting latest news while use of spreadsheets (excel) is unsatisfactory among both teachers and students. lack of training, lack of technical support, Lack of peer support, slow connectivity, power failure, lack of quality software, lack of quality hardware, lack of software, lack of knowledge and lack of confidence as top 10 barriers among teachers. Sequence was changed among students as lack of hardware, lack of quality hardware, lack of software, lack of quality software, lack of training, lack of technical support, lack of peer support, slow connectivity, power failure and lack of confidence were arrayed as top 10 barriers/problems.

A more holistic approach may be used for the training of both groups. Emphasis may be given on the maximum deployment of computers and internet so that optimum benefits may be achieved to meet the challenges of 21st century.
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