COLLEGE TEACHERS' PERCEPTION ABOUT PEDAGOGICAL USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN LAHORE (PAKISTAN)

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ABSTRACT

Information and communication technologies (ICTs) have been extensively used for pedagogical purposes across the globe. The current scholarship argues that teachers' ICT skills contribute in developing their perception about pedagogical use of ICTs. In developing countries like Pakistan, initiatives have been taken to integrate ICTs in education. However, there has been paucity of research in order to know the existing level of ICT Skills and its relationship with perception of college teachers about pedagogical use of ICT. Keeping in this view, following research study was conducted to examine this relationship among college teachers in Lahore. By using cross sectional survey research method, 228 teachers were surveyed from colleges situated in Lahore. Findings are aligned with current discourse that ICT skills of teachers play an important role in developing their perception about pedagogical use of ICTs.

Keywords: *ICTs, Pakistan, Teachers Perception, Pedagogical use*

INTRODUCTION

In last few years, ICTs have been integrated into education sector across the globe (Hsu, 2010). The gigantic investments have been

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made by various governments in ICT projects to improve current pedagogical practices and learning processes (Hew & Brush, 2006). Nevertheless, ICTs integration in education becomes now inevitable but there is need to understand this complex phenomenon (Granger et al., 2002; Tondeur, Coopert, & Newhouse, 2010). Therefore, various researchers have discussed and argued different strategies and models for ICT integration into education system (Jhurree, 2005). However, it has not been yet explored any systematic process which can be generalised worldwide for successful integration of ICT in education system (Tondeur et al., 2010). Despite, researchers are agreed that teachers play a fundamental role in this process, because, ICTs become precious when teachers use it for pedagogical purposes (Hismanoglu, 2012).

Teachers' access to ICTs does not guarantee its pedagogical use (OECD, 2004; Pelgrum & Law, 2003). Gimbert and Cristol (2004) identify that pedagogical use of ICTs is dependent on teachers' perception. For instance, teachers' intention to use ICT can be predicted by his/her subjective perceptions of its usefulness (Ma, Anderson, & Streith, 2005).

Several factors have been identified by researchers to influence the adoption ICT for pedagogical purpose. These factors can be categorized into internal or psychological and external or organizational (Ertmer, 1999; Stuart, Mills, & Remus, 2009). In internal or psychological factors, one of the major factors is the attitude of teachers toward ICTs utilisation in their teaching (Andoh, 2012; Teo, 2008; Drent & Meelison, 2008; Huang & Liaw, 2005). The second major predictor of ICT adoption among teachers is the motivation to use ICT resources in the daily practices (Sang et al., 2009). For this particular propose, we cannot neglect the competence and ability of teachers in utilising ICTs into educational process (Knezek & Christensen, 2002; Jones, 2004). Thus it can be deduced that the ICT skills of teachers and their perception about pedagogical use of ICTs are two most important factors in integrating ICT into education. The researchers argue that ICT competency or skills itself a significant

predictor of the perceived usefulness of ICT in teaching-learning process (Compeau & Higgins, 1995; Liaw, Huang, & Chen, 2007; Peralta & Costa, 2007; Yuen & Ma, 2008).

RATIONALE OF CURRENT STUDY

In Pakistan, several ICT projects have been launched to transform Pakistani education culture. Allama Iqbal Open University and Virtual University distance learning programs[**] have been recognised worldwide in providing quality education to their students. Now in formal education sector, four thousand and two hundred eighty six government primary and higher secondary schools in Punjab province have been equipped with ICT labs through Punjab IT lab project[††]. At higher educational level, two hundred and ten thousand laptops have been awarded to students in Punjab through Youth Development Program[‡‡]. Similarly, those teachers who are involved in higher studies have also been given these laptops. While at university level, most of the public sector universities have equipped themselves with modern ICT facilities in order to improve education. Moreover, most of the universities have also provided laptops to their teachers for initiation of ICT culture among them. Besides all the investments made to exploit ICTs in Pakistani education system, there has been paucity in research about ICT in Pakistani education system. Thus this research study aims to investigate how ICT skills influence teachers' perception about ICTs as a teaching and learning tool.

METHODOLOGY

The study was cross sectional in nature and survey method was adopted. In Lahore, there are various public sector and private sector colleges offering education at intermediate and bachelors' level. The researchers selected six public sector and six private sector colleges

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[**] http://olive.aiou.edu.pk/ and http://www.vu.edu.pk/

[††] http://punjabitlabs.edu.pk/

[‡‡] http://www.youth.punjab.gov.pk/freelaptops.aspx

for the population. A criterion was also drawn for teachers' section. Those teachers were selected who had at least two years teaching experience. For the data collection, a structured questionnaire was used. By adopting purposive sampling, 300 teachers were contacted and 228 teachers responded positively. The response rate was 70 percent. The data were entered in Statistical Package for Social Sciences (SPSS) for analysis. ICT skill was independent variable of the study. This variable measured through six items. These items included statements about the use of simple applications i.e. word processors (word), spreadsheets (excel), presentation software (power point) and advances application i.e. computer aided instruction software, online content and instructional films. Perception about pedagogical use of ICTs was dependent variable of this study. This variable measured through four items. These items consisted of their perception about usefulness of ICT in teaching, assistance in administrative work, aide for lecture preparation, and tool for self learning and critical thinking.

FINDINGS

Table 1 shows the demographic characteristics of the respondents. The data were collected from both genders as 50.8% of them were male respondents and the remaining 49.1% respondents were female. Table 1 also indicates that 65.8 % respondents had MA/MSc degree while 72 31.57% respondents attained M Phil degree in their education career. There were only six teachers who had PhD degree. The findings reveal that majority 89.4% of the respondents had their own personal computers. There were 10.5% respondents that did not have personal computers. Furthermore, 42.5% teachers' had access to internet as well.

Table 1: Demographic characteristics (N=228)

Variable	Frequency	Percentage
Gender		
Male	116	50.87
Female	112	49.13
Education		
M.A/Msc	150	65.80
M.Phil	72	31.57
PhD	06	02.63
Personal Computer		
Yes	204	89.47
No	24	10.53
Provision of Internet		
Yes	97	42.54
No	131	57.46

ICT skills

Jones (2004) highlights the significance of teachers' skills or competency to use ICT in developing their perception about pedagogical use of ICTs. Table 2 depicts information about the level of ICTs skills of college teachers in Lahore. The findings reveal that majority of the teachers could use word processors. About their competency in using word processors, 52.6% teachers were fully proficient and 36.8% were moderately proficient. In addition to this, 10.6% teachers were proficient in this skill. There was not even a single teacher who could not use word processor.

Table 2: ICT skills

	Fully Proficient	Moderately Proficient	Proficient	Slightly Proficient	Not Proficient
Type of ICT	F (%)	F (%)	F (%)	F (%)	F (%)
Word Processors (Word etc.)	120 (52.6)	84 (36.8)	24(10.6)	-	-
Spreadsheets (Excel etc.)	84 (36.8)	84 (36.8)	36 (15.8)	24 (10.6)	-

Presentation Software (PowerPoint etc.)	156 (68.4)	60 (26.3)	-	12 (5.3)	-
Computer Aided Instruction Software	12 (5.3)	30 (13.2)	30(13.2)	60 (26.3)	96 (42)
Online Content	36 (15.8)	60 (26.3)	24 (10.6)	12 (5.3)	96 (42)
Instructional Films (video, CD, VCD etc.)	36 (15.8)	24 (10.6)	08 (3.5)	40 (17.5)	120 (52.6)

The second basic ICT skill is use of spreadsheets. Table 2 illustrates that majority of college teachers could also use spreadsheets in their work and teaching. There were 36.8% teachers that considered themselves fully proficient in using spreadsheets and similar proportion of teachers recognised that they were moderately proficient in using spreadsheets. However, 10.6% teachers ranked themselves as slightly proficient in using spreadsheets in their daily routine work. The third basic skill is use of presentation software. Table 2 depicts that college teachers were fully competent in using this software. There were 68.4 teachers that could use presentation software without any problem and fully proficient in using this application in their teaching and routine work. In addition to this, 26.3% teachers ranked themselves as moderately proficient in using presentation software. Overall, majority of teachers could use these basic ICT applications proficiently in their routine work.

However about advanced ICT applications, respondents answered differently. Table 2 indicates that majority of college teachers did not able to use computer aided instruction software. There were 42 % teachers that could not use computer aided instruction software and 26.3% teachers recognised themselves as slightly proficient in using the software. Only 5.3% teachers could fully use computer aided instruction software in their teaching. About the use of online content available on internet, majority of college teachers could not use available online content on internet in their teaching. There were 42% teachers that considered themselves as not proficient in using

available online content for pedagogical purposes. However, 15. 8% teachers were fully proficient in using available online content in their teaching. The last indicator of ICT skills is the use of instructional films. Table 2 illustrates that majority of college teachers did not able to use instructional films for pedagogical purposes.

Perception about pedagogical use of ICTs

Table 3 presents information of perception about pedagogical use of Information and communication technologies. Majority of college teachers agreed that ICT could be utilised for instructional purposes. There were 46.5% teachers that strongly agreed upon ICT use for instruction and learning of very subject matter in the curriculum. In addition to this, 48.2 % teachers were agreed of this particular use of ICTs. ICT can also be utilised in doing administrative work and for preparing lectures. Table 3 indicates that 26.3% teachers strongly agreed that ICT could be utilised in doing administrative work and lecture preparation. Further, 15.8% teachers remained neutral and 21% teachers disagreed regarding administrative use of ICTs.

Table 3: Perception about pedagogical use of ICT

Type of ICT	Strongly Agree F (%)	Agree F (%)	Neutral F (%)	Disagree F (%)	Strongly Disagree F (%)
ICT can be a tool for instruction and learning for every subject matter in the curriculum	106 (46.5)	110 (48.2)	12 (5.3)	-	-
ICT is useful only for administration and teachers' work preparation (leaflets, exams, tests, etc.)	60 (26.3)	60 (26.3)	36 (15.8)	48 (21)	24 (10.6)
ICT can contribute substantially in self learning	48 (21)	69 (30.2)	12 (5.3)	75 (32.9)	24 (10.6)
ICT can help students' critical thinking	84 (36.8)	84 (36.8)	36 (15.8)	24 (10.6)	-

In order to assess teachers' perception about effective ICT utilization among students, two indicators have been used. The first indicator is ICT role in initiating self learning among students. Table 3 reveals that majority of college teachers believed that ICT could contribute substantially in self learning. There were 21% teachers that strongly agreed about ICT utilisation in self learning. Moreover, 30.2% teachers strongly agreed that ICT could play its role in initiating self learning among students. However, regarding the efficiency of ICTs in self learning, 32.9% teachers did not agree that ICT could effectively utilise in self learning. Research shows ICT skill in education can contribute in enhancing students' critical thinking. Table 3 reveals that college teachers recognised the role of ICT in enhancing students' critical thinking. On the whole, college teachers perceived ICT as an effective pedagogical tool.

Relationship between ICT skills and teachers' perception about pedagogical use of ICTs

Pearson r correlation was calculated in order to see the relationship between teachers' ICT skills and their perception about pedagogical use of ICTs. Table 4 depicts that there is strong relationship (r =0.598) between ICT skills and teachers' perception about pedagogical use of ICTs.

Table 4: Relationship between ICT skills and teachers perception about pedagogical use of ICTs

		Perception about pedagogical use of ICT
ICT skills	Pearson Correlation	.598[***]
	Sig. (2-tailed)	.000
	N	228
***. Correlation is significant at the 0.001 level (2-tailed).		

CONCLUSION

In Pakistan, college teachers are well educated and have enough expertise to make use of ICTs for pedagogical purposes. However, they are not fully proficient in using computer instructional software and available online content. The reason behind this is lack of proper training on advance ICT applications. Thus there is need to train teachers to utilise advance ICT applications for pedagogical. The following study is aligned with the current scholarship that ICT skills contribute in making positive perception of pedagogical use of ICTs. Further research is required to see the actual use of ICT in our education system and what factors hinder this integration process.

REFERENCES

Andoh, C.B. 2012, "Factors influencing teachers' adoption and integration of information and communication technology into teaching': A review of the literature", *International Journal of Education and Development using Information and Communication Technology*, vol. 8, no. 1, pp. 136-155.

Compeau, D.R., & Higgins, C.A. 1995, "Computer self-efficacy: Development of a measure and initial test", *MIS Quarterly*, vol. 23, no. 2, pp. 145-158.

Drent, M., & Meelissen, M. 2008, "Which factors obstruct or stimulate teacher educators to use ICT innovatively?", *Computers & Education*, vol. 51, no. 1, pp. 187-199.

Ertmer, P.A. 1999, "Addressing first- and second-order barriers to change: Strategies for technology integration", *Educational Technology Research and Development*, vol. 47, no. 4, pp. 47-61.

Gimbert, B., & Cristol, D 2004, "Teaching curriculum with technology: Enhancing children's technology competence during early childhood", *Early Childhood Educational Journal*, vol. 31, no. 3, pp. 207-216.

Granger, C.A., Morbey, M.L., Lotherington, H., Owston, R.D., & Wideman, H.H. 2002, "Factors contributing to teachers'successful implementation of IT", *Journal of Computer Assisted Learning,* vol. 18, pp. 280-88.

Hew, K. F., & Brush, T. 2007, "Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research", *Education Technology Research and Development,* vol. 55, pp. 223-252.

Hismanoglu, M. 2012, "Prospective EFL Teachers' Perceptions of ICT Integration: A Study of Distance Higher Education in Turkey", *Educational Technology & Society,* vol. 15, no. 1, pp. 185-196.

Huang, H.M., & Liaw, S. S. 2005, "Exploring users' attitudes and intentions toward the Web as a survey tool", *Computers in Human Behavior,* vol. 21, no. 5, pp.729-743.

Jhurree, V. 2005, "Technology integration in education in developing countries: Guidelines to policy makers", *International Education Journal,* vol. 6, no. 4, pp. 467-483.

Jones, A. , *A Review of the Research Literature on Barriers to the Uptake of ICT by Teachers. British Educational Communications and Technology Agency*. Available: http://www.becta.org.uk. [2010, january/7].

Knezek, G. & Christensen, R. 2002, "Impact of New Information Technologies on Teachers and Students", *Education and Information Technologies,* vol. 7, no. 4, pp. 369-376.

Liaw, S., Huang, H., & Chen, G. 2207, "Surveying instructor and learner attitudes toward E-learning.", *Computers & Education,* vol. 49, no. 4, pp. 1066-80.

Ma, W., Anderson, R., & Streith, K. 2005, "Examining user acceptance of computer technology: an empirical study of student teachers", *Journal of Computer Assisted Learning,* vol. 21, no. 6, pp. 387-395.

Neyland, E. 2011, "Integrating online learning in NSW secondary schools: Three schools perspectives on ICT adoption", *Australia Journal of Educational Technology,* vol. 27, no. 1, pp. 152-173.

OECD 2004, .*Education policy analysis*. Available: . http://www.oecd.org /dataoecd/22/54/34979803.pdf [2013, january/05].

Pelgrum, W. J., & Law, N. 2003 , *ICT in education around the world: Trends, problems and prospects. Paris: UNESCO, International Institute for Educational Planning.* Available: http://unesdoc.unesco.org/ images/0013/001362/136281e.pdf. [2013, january/05].

Peralta, H., Costa, F.A. 2007, "Teachers' competence and confidence regarding the use of ICT", *Educational Sciences Journal,* vol. 3, pp. 75-84.

Sang, G., Valcke, M., Van Braak, J. & Tondeur, J. 2009, "Factors support or prevent teachers from integrating ICT into classroom teaching: A Chinese perspective", *Proceedings of the 17th International Conference on Computers in Education. Hong Kong: Asia-Pacific Society for Computers in Education 808-815*.

Stuart, L. H., Mills, A. M., & Remus, U. 2009, "School leaders, ICT competence and championing innovations", *Computers & Education,* vol. 53, pp. 733-741.

Teo, T. 2008, "Pre-service teachers' attitudes towards computer use: A Singapore survey", *Australasian Journal of Educational Technology,* vol. 24, no. 4, pp. 413-424.

Tondeur, J., Coopert, M., & Newhouse, C.P. 2009, "From ICT coordination to ICT integration: a longitudinal case study", *Journal of Computer Assisted Learning,* vol. 26, pp. 296-306.

Yuen, A. H. K., & Ma, W. W. K. 2008, "Exploring teacher acceptance of E-learning technology", *Asia-Pacific Journal of Teacher Education,* vol. 36, no. 3, pp. 229-243