Usefulness of Punjab IT Labs Project in Schools of Punjab, Pakistan

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Abstract

The objective of the study was to investigate the usefulness of Punjab IT Labs Project. 4286 IT Labs were set up in schools of Punjab province. The population of research included all the teachers of public sector schools equipped with computer labs. Six (6) districts were selected randomly among all 36 districts for study. A survey questionnaire was developed to collect data. The questionnaire consisted of questions designed to collect data concerning the views of teachers about IT labs. Teachers were interviewed for qualitative data. It was concluded that most of the teachers had no knowledge of computer. Lack of time was another factor prohibiting teachers to the use of IT lab. The study recommended that the teachers should be provided training to use computer. There is also need to provide technical support and maintenance funds to get better results.

Keywords: Technology, Secondary, Teachers, Schools, Punjab

Introduction

It is fundamental right of each individual to get education regardless of gender, religion, culture or race. According to UNESCO (2001), one way to get education is to become able to use information and communications technology. ICT can play a critical role by providing quality in human development. ICT can upgrade human resources in several manners. The utilization of new technology has turned into an indicator of economic advancement of a nation. There is only one way to bridge the economic divide between advance and developing countries. Campbell (2001) stated that as information technology is associated with economic growth, the digital divide can justify the gap between advance and developing nations.

Information technology enhances the quality of education which improves the standard of living and it modernizes the societies. Bates (2001) said that because of the effect of ICT on numerous organizations, the concept of education and learning has been changed.

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At the time of planning to integrate computers in education, secondary level should be emphasized. Adomi and Anie (2010) described that everybody needs ability to use ICT in this era of innovation and technology. Associations and organizations are considering setting up their insight into PCs and other ICT facilities.

There is a challenge to integrate ICT in education for developing countries. The ICT facilities are not available in most of the non-developed regions. There is also lack of infrastructure and internet connection problems in these countries. To attain our goals we should rebuild the teaching models. Blackboard and chalk should be replaced by white screen in the classroom. In classroom audio-visual aids are rarely used. In some educational institutions library books or journals are provided to students.

All developing countries are focusing their attention in policy framework to set up computer laboratories in educational institutions. South Asian countries have buildup computer laboratories in schools. According to UNESCO (2010), most of the governments of South Asia regions have focused to establish IT Lab at secondary school level. There are many private and non-government organizations, providing information technology in different schools especially in northern areas of Pakistan.

Punjab IT Lab project was initiated by the government of Punjab. There were established 4,286 computer labs in public sector institutions. It was expected that each year 3.4 million students will get education through Punjab IT Lab Project. The valuable knowledge will be on door step of the learners due to internet connectivity. There will become a change in attitude of teachers as well as students in government schools. They will get rid of traditional method of teaching and learning. There is digital divide between private and government institutions. It was an effort to bridge the digital divide between these schools.

A number of studies have focused on use of information and communication technologies in education. Infrastructure problems have been discussed in these studies while a few studies have been conducted to measure the range, status and usefulness of ICTs in Pakistan especially in education. There is a need to study the usefulness of ICT facilities provided to educational institutions by government. The mega project, Punjab IT Lab has been working since 2009 in schools of Punjab. It seems desirable to study the IT Labs established in government schools so that the gaps for improvement can be identified.

Research questions
1. What are the views of teachers about the IT Labs established in schools?
2. At what context academic needs are being fulfilled in schools of Punjab by IT Labs? What are the opportunities and obstacles to use computers in IT Labs as perceived by teachers?

Methodology

Teachers working at schools of Punjab were   population of the research. Six (6) districts of Punjab province were selected to conduct the study.   Stratified random sampling method was used to select the sample. A survey questionnaire was developed to collect data. The questionnaire comprised of 32 items to collect data about the perceptions of teachers regarding the usefulness of IT Lab. The items were improved after discussing with experts. The reliability of instrument was determined by conducting pilot study. Cronbach alpha was calculated. Its value was 0.82 which is acceptable value. The questionnaires were sent to teachers by post. 1000 questionnaires were sent to the secondary schools teachers. There were 652 teachers who responded the questionnaire. 278(42.6%) male and 374 (57.4%) female teachers were respondents of the questionnaire.

Results and Findings

Results of the study showed that 335 (51.4%) teachers had a facility of internet at their home while 48.6% teachers had no internet at their home. According to findings of the study 301(46.2%) respondents reported that they never used IT Lab, 131(20.1%) teachers used computers in class seldom, 16(2.5%) teachers were found using IT Lab only one time in a month, 17(2.6%) teachers were using computer in IT lab after two weeks, 77(11.8%) teachers used computers in IT Lab on weekly basis. It was found that 58(8.9%) teachers used IT Lab almost daily and 52 (8%) teachers used IT Lab daily. 352(54%) respondents were of view that they did not use IT Lab due to lack of time, 217(33.3%) were not using IT Lab due to lack of knowledge, 42(6.4%) teachers responded that they did not use IT Lab in computer due to lack of confidence, 25(3.8%) respondents did not use IT Lab due to fear, 237(36.3%) teachers did not use computer in computer due to lack of training. Age was the factor of 96(14.7%) teachers for not using Computer. 78(12%) teachers responded that IT Lab are not accessible that is why they did not use IT Lab. Table.1 shows the demographic information of teachers.

Table 1

Demographic information's of teachers (N = 652)

Attributes	Gender	Frequency	Percentage
Gender	Male	278	42.6
	Female	374	57.4
Educational qualification	Matric	13	1.80
	F.A	18	2.80
	Graduate	120	18.4
	Master	480	73.6
	M.Phil	20	3.10
	PhD	1	0.2
Subjects Taught	Arts	251	38.4
	Religious study	50	7.70
	Physical science	292	44.8
	Computer science	55	8.4
	Technical	4	0.6
Locality of Schools	Urban	236	36.3
	Rural	416	63.7

The table 2 shows that most of the respondents agreed that sufficient hardware are available to teachers whenever they need in lab (Mean Score= 1.326, St.dev= 1.47). Most of the respondents were of view that interest in learning has increased due to IT Lab (Mean Score= 4.11, St.dev= .905). Majority of the respondents were of view that there is lack of basic knowledge to use IT Lab (Mean Score= 3.75, St.dev= 1.056). The statement "Intermittent disruption of electricity is a barrier for IT lab use" was highly probable (M= 4.08, SD= 1.087). The statement "Internet is working properly in IT lab" was fairly probable are (M=3.82, SD=1.1880). The statement "There should be provided training to all teachers to use" was highly probable (M= 4.40, SD=.827). The statement "Teachers' knowledge about preparation of lesson on information technology is main hurdle in effective use of IT labs" was fairly probable (M= 3.87, SD=1.000).

Table 2

Mean, standard deviation and st. error of different variables

Variables	Mean Score	Std. Error Mean	Std. Deviation
Hardware availability	3.26	.053	1.347
IT Lab accessibility for teachers	3.59	.052	1.338
IT Lab accessibility for students	4.19	.042	1.068
Interest in learning and IT Lab	4.11	.035	0.905
Use of Lab as official/clerical work	4.20	.040	1.034
Knowledge about ICT Integration	3.70	.041	1.045
Computer as Compulsory subject	4.06	.045	1.140
Computer Integration in all subjects	4.02	.039	0.987
Connection Problems	3.83	.047	1.188
Security of Lab equipments	3.60	.049	1.250
Lack of basic knowledge	3.75	.041	1.056
Lack of training	4.41	.032	0.827
Use of IT for Preparation of lesson	3.09	.048	1.228
Encouragement by head teacher	3.68	.047	1.189
Encouragement by IT teacher	3.75	.045	0.144

Qualitative Data

Teachers were interviewed about the use of computers in IT lab. They were enquired that for what purpose IT Lab was being used by them?

Teacher replied, "I perform work on computer in IT Lab to register students' enrollment for Punjab Examination Commission. He continued that he uses computer lab to prepare timetable of school. According to Teacher B, "I always search the lesson/topic in IT lab before delivering my lesson." Teacher C, was not using computer at all. He told that he was not using computers because of age factor and health problem. According to Teacher C, "I do not use computer due to health problem. There is problem of shortage of time." Teacher D was not using internet in IT Lab. He described "I always use internet on my cell therefore I do not feel the need of IT Lab."

The person C, described that her son had taught her to use computer. She told that government had not given any training. She have learnt to use computer from her son. He is doing engineering" Teacher B, informed "I have got training of computer for one week. This was a refresher course and departmental training for science teachers."

According to Teacher D, "I have got training of two weeks regarding computer." Some teachers were personally interested in using computers. They had got no any training. The person E, responded that he had learnt the use of computer by his friend and he has given no any training in school. He told that he had bought a book to learn computer." Teacher I, described that he had attended a vocational training center to learn computer but it was his personal attitude. He described, "I got admission in a three month training course at commercial center as I was interested in computers and internet." According to The Person J, "During my educational qualification, I have learnt computer but in-service training has not increased my interest."

IT teachers were not available in some IT labs. These labs were not in function. According to person F, "IT teacher is not available in our computer lab as he has been transferred. Any other teacher do not know how to use computer therefore IT Lab is closed are trained. Teachers should be given training so that they can teach their students with computers."

Themes emerged from interviews
- IT Labs Project is a good initiative of the government of Punjab.
- IT Labs are useful for school administration.
- There is load of work and burden on IT teacher and he has to teach all the classes at secondary schools.
- There are IT Labs without IT teachers. The students are not getting benefit from these labs as labs are not in function.
- There is one IT teacher to teach computer subject to all class, class 6 to 10th class.
- Interruption of electricity is a main problem to use computers in IT Lab.
- Time allocation was a problem for training of teachers during the school time.

Discussion

The findings of the study showed that fifty two percent teachers were not using computer due to lack of time. In other studies it was also found that time was an important element affecting the use of computer? According to the findings of the study conducted by Totter, Stutz, and Grote (2006), lack of available time was second factor impacting the use of technology in education. Teachers had lack of time to prepare lessons based on computer resources. The research findings of the study conducted by Rodden (2010) revealed that teachers were not using technology due to lack of time even there were available sufficient resources. In current study 33.3% respondents do not use computer in IT Lab because of shortage of knowledge about computer. Shortage of knowledge concerning the computer is main barrier to use IT Lab. The findings of different studies showed the same results. Newhouse (2002) concluded in his study that many teachers have lack of basic knowledge to use IT Lab.

This study showed that 36.3% teachers reported that they were not using computer due to lack of training. The study reinforces the findings of the study conducted by Torok (2007). According to the findings of his research the mostly respondents were inexperienced in computer use. The current study revealed that lack of training is the main obstacle to use of new technology. Beggs (2000) found that lack of training as one of the top three hinders to use of technology in instruction. BECTA (2004), in his study concluded that effective training has its importance to integrate computers in education. The findings of this study showed that the facilities were available to the students and teachers but the major barrier to not use IT Lab was the lack of training. These findings were the same as concluded by Safdar, Iqbal, Ghazi & Farooq (2011). According to the findings of their study majority of both teachers and students (more than 80%) were in favour that lack of training is the major barrier to use information technologies in education.

According to the findings of this study 46.4% teachers reported that they were not using computer due to lack of confidence and 3.8% teachers reported that they were not using computer due to fear. Lack of confidence and fear to use computer were also the results of the study conducted by Rodden (2010).

The study showed that the teachers who are familiar with computers do not know to integrate computer in curriculum. Insufficient technical support and due to little access to IT lab teachers do not use computers. Duration of period and time needed to learn using computer-assisted techniques were also prohibiting teachers to use IT Lab.

Teachers do not use computer because of shortage of time and shortage of knowledge regarding the computer. No doubt, it demands time to prepare lesson using instructional technology, so the curriculum should be improved according to the needs of this age. There is need to train all the teachers to get full benefits of IT Lab.

Inadequate maintenance funding for IT Lab equipment is one of the problems for effectively use of IT Lab. There is need to provide technical support and sufficient funding for maintenance of Labs. IT Labs are being used for composing official letters Performa's. Actually clerical staff of schools is not trained in computer and IT teacher has to compose the official letters. Clerical staff of schools should also be trained and IT teacher should get rid of clerical job. Mostly teachers were in favour that all pupils might be given opportunity to use IT Lab. In current situation only those students use computers who have adopted subject of 'Computer' at secondary level and only IT teacher uses computer in delivering his lesson.

In this study it was found that disruption of electricity during the work in IT Lab was the main problem faced by students and teachers. This finding was supported by Safdar, Iqbal, Ghazi, and Farooq (2011). According to their study both teachers and

students (more than 66%) were of view that power failure is the main barrier to use of computer in education.

There was found significant difference based on age in use of computer for preparation of lesson as perceived by teachers (F=5.967, P<.05). It was indicated that perceptions of teachers of age 20-30 years were higher than the perceptions of teachers of age 41-50 years about the preparation of lesson in Computer. It means that the young teachers were using Computer to prepare lesson. This result was supported to the report conducted by U.S. Department of Education (2000), which showed that teachers with fewer years of teaching experience were using IT Lab and the internet for preparing their lectures.

The study showed that all subject teachers were not using IT Lab during their instruction due to lack of knowledge about the use of computer. Majority of the teachers suggested that computers should be integrated in all subjects at secondary level. There is need to introduce computer-assisted instructional techniques. IT Labs are useful to get directions by administration immediately. The usage of IT Labs could contribute to radical changes in school management.

Conclusions

Perceptions of teachers were determined regarding the use of computers in IT Labs established in schools of Punjab. The earlier studies were conducted to evaluate the effect of computer on academic achievements and there are few studies in which barriers to use computer in teaching and instruction has been discussed. Mostly teachers want to use computer but they have lack of knowledge to use the computer.

Teachers do not use computer because of shortage of time and knowledge of computer. No doubt, it demands time to prepare lesson using instructional technology, so the curriculum should be improved according to the needs of this age. A large amount was deputed for computer Labs in Punjab, but half of the teachers are not using labs due to lack of training about the use of computers. IT teacher is a person who can train the teachers and staff but it needs planning. IT Lab Project is a good initiative of government of Punjab. IT Labs are useful for school administration but most of the clerical staff is not trained and IT teachers are involved in official and clerical work. There is load of work and burden on IT teacher and he has to teach all the classes at secondary schools. All the teachers should be given training. Teachers can play important role to get full benefits of this mega Project.

Limitations and Future Directions

This study has some limitations that create opportunities for further research. This study was conducted on teachers. Further studies may be conducted on students and education administrators. The teachers who responded to the questionnaire were 65%. It is possibility that the teachers who never used the IT Lab may not interested to

take part in study. Observations and interviews from students may be beneficial for study. Head teachers may provide more fruitful information for further study.

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