

**A COMPARATIVE STUDY ON THE EFFECTIVENESS OF ICT SKILLS DEVELOPMENT PROGRAM AND CONVENTIONAL APPROACH TO TEACHING COMPUTER APPLICATION TO PROSPECTIVE TEACHERS**

**Dr. Hemant Bhatt**

**Assistant Professor**

Indo Global College of Education

Abhipur, Distt. Mohali

**Abstract**

The purpose of this study is to compare and evaluate the effectiveness of ICT skills development program and conventional approach to teaching computer application to prospective teachers. Our research compares the improvement of the prospective teacher's competence using two teaching approaches. The first one employs our ICT oriented learning method and second method is based on the conventional approach of teaching computer application to prospective teachers. The sample of the study comprised of 102 prospective teachers selected randomly from the Private B.Ed colleges of Punjab affiliated to Punjabi university, Patiala. The first experimental group consisted of 51 prospective teachers who were taught computer application through ICT skills development program. The control group consisted of 51 prospective teachers who were taught computer application through conventional approach. Prospective teachers in both groups were pre-tested and post-tested for their computer achievement. The results showed ICT skills development program contributed significantly more to the computer achievement of prospective teachers as compared to conventional approach. The finding of the study revealed that there was significant difference in the computer achievement of student taught with different instructional treatment.

**Keywords:** ICT Skills Development Program, Conventional Teaching Approach, Computer Achievement Test,

**Introduction**

Education is a light that shows the mankind the right direction to surge. The purpose of education is not just making a student literate but adds rationale thinking, knowledge ability and self sufficiency. When there is a willingness to change, there is hope for progress in any field. Creativity can be developed and innovation benefits both students and teachers. The 21st century is dedicated to bring up a knowledge-based society in which required competencies strive to follow the extremely fast development of tools that are needed for enhanced work and Life Long Learning. But, the structure of teacher education is not suitable to handle the extent of changes progressing in our daily lives influencing the next generation of learners. Thus, there needs to be a sustainable flow of innovation continuously shaping public education in order to bring up a generation that can stand up to requirements within the future workforce. According to the Merriam Webster

dictionary, innovation is merely “the introduction of something new” and Wikipedia adds very wisely, that “the central meaning of innovation relates to renewal or improvement, with novelty being a consequence of this improvement”. One can read a lot of articles on innovation, which suggests a set of tools that are considered to be innovative and thus makes believe that the use of which would result in innovation. Web 2.0 tools are referred to as such, but very often even the description of this set of tools is unclear to the public as well as teachers who are supposed to achieve innovation by using them in their daily routines. Information and Communication Technologies (ICTs) are referred to as the varied collection of technological gear and resources which are made use of to communicate. They are also made use of to generate, distribute, collect and administer information. Today ICTs including laptops wirelessly connected to the Internet, personal digital assistants, low cost video cameras, and cell phones have become affordable, accessible and integrated in large sections of the society throughout the world. It can restructure organizations, promote collaboration, increase democratic participation of citizens, improve the transparency and responsiveness of governmental agencies, make education and health care more widely available, foster cultural creativity, and enhance the development in social integration (Kozma, 2005).

The trend analysis shows that the impact of ICT on the learning process seems to be more important and requires more than looking only to curricula. Improved student outcomes are observed, with regard to: motivation, enjoying learning; self-esteem; collaborative skills; subject knowledge; information handling skills; meta-cognitive skills. These results have been supported by Osakwe & Regina (2013); Sarkar (2012); Vronska (2012); Dagiene (2013); Fuchs & Woessman (2004). Mwalongo (2011) examined teachers’ perceptions about the use of ICT tools for teaching, administration, professional development and personal use. Results indicated that while the frequency of use of ICT was influenced by access, the competence of ICT use was influenced by training; teachers used ICT in a wide range for teaching, administration, professional development and personal use. However, teachers did not use ICT to radically change their pedagogical practices, but rather to sustain their traditional practices. Alazzam (2012) found no significant effect of teachers’ educational background and support factors on teachers’ overall ICT readiness. In addition, Fuchs & Woessman (2004) found positive correlation between the availability of ICT and students’ attitude and achievement. Sabzwari, Bhatti, & Ahmed, (2012) found most of students don’t have knowledge of basic skills of computer. Nisar, Munir & Shad (2011); Wanjala (2011); Mukwa (2011) supported existence of ICT in improving the educational efficiency as well as obliging for making policies regarding education sector.

## **OBJECTIVES**

To compare the effect of Information and Communication Technology (ICT) skills development program and conventional approach on Computer achievement of prospective teachers.

**HYPOTHESIS**

There is no significant difference in the mean gain scores on computer achievement of

Group	Computer Achievement	N	Mean	S.D
Experimental	Pre Test	51	19.82	6.86
	Post Test	51	53.11	3.85
Control	Computer Achievement	N	Mean	S.D
	Pre Test	51	17.64	4.01
	Post Test	51	22.94	5.03

prospective teachers exposed to different instructional treatments.

**RESEARCH METHODOLOGY**

The study in hand aimed to study the effect of information and communication technology skills development program on computer achievement of prospective teachers. Keeping in view the objectives and purpose of study, experimental method was used by the investigator.

**Design of the Study**

Group	Independent Varriable	Outcome before treatment	Outcome after treatment	Difference in outcomes	Net Effect
Experimental	ICT skill development Program	E1	E2	E= E2-E1	E-C
Control	Conventional teaching method	C1	C2	C=C2-C1	

**TOOLS**

The following tools will be used for collecting data:

1. Information and Communication Technology (ICT) skills development program.
2. Computer achievement test

**ANALYSIS OF MEAN GAIN SCORES ON COMPUTER ACHIEVEMENT**

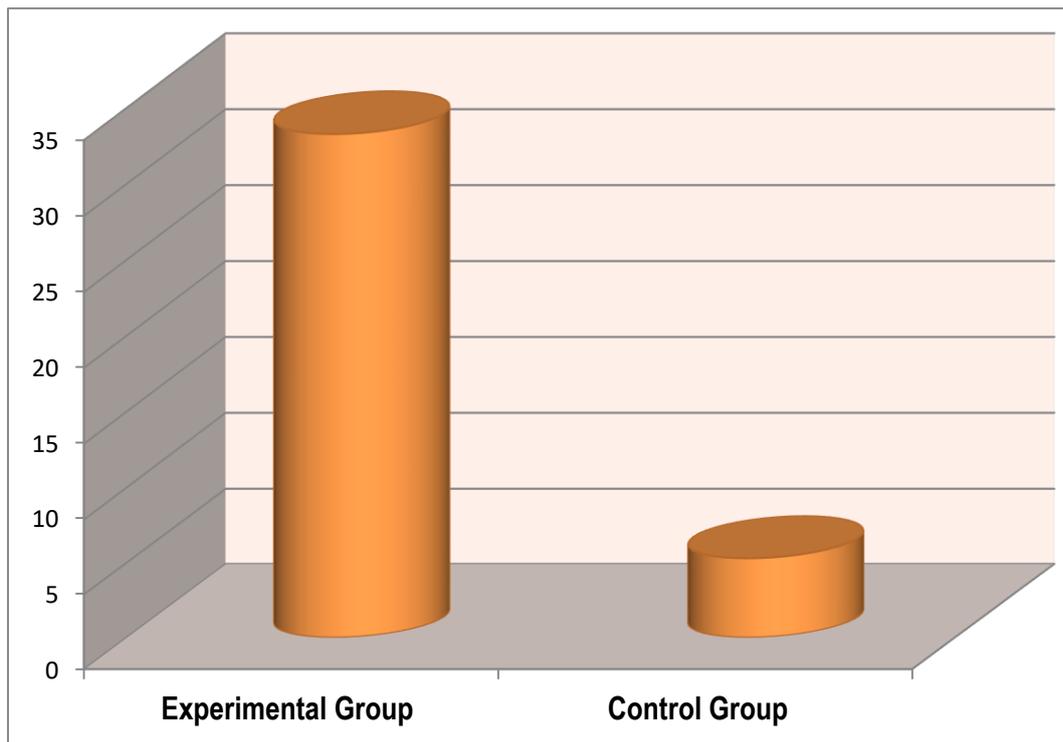
**Table 1: Mean score of experimental and control group on computer achievement**

It is evident from the table 1 that the two instructional treatments yielded different mean scores in computer achievement. It shows that prospective teachers taught through ICT skills development program showed higher computer achievement as compared to those taught through conventional method. Therefore, it could be interpreted that there is significant difference in the mean score of experimental group on computer achievement after the experimental treatment i.e. both the groups are not similar with respect to their scores in computer achievement.

**Table 2: t - ratio for difference in mean gain scores of experimental and control group on Computer Achievement**

Group	N	Mean	S.D	t- ratio	Remarks
Experimental	51	33.29	7.80	23.52**	Significant
Control	51	5.30	2.54		

**\*\* Significant at 0.01 level; \* Significant at 0.05 level**



**Figure 1: Bar diagram showing comparison Mean Gain Scores of Experimental and Control Groups on Computer Achievement**

It is apparent from the table 2 and figure 1 t-value for difference in the mean gain scores of control and experimental group are 23.52 which is significant at 0.01 level of significance on computer achievement. Therefore, there exists significant difference in the mean gain scores on computer achievement of prospective teachers exposed to different instructional treatments. The mean gain scores of experimental group (33.29) are better than control group (6.35). It indicates that instructional treatment has good effect on the experimental group. Hence, the null hypothesis, There is no significant difference in the mean gain scores on computer achievement of the two groups, was rejected. The result indicates that the two groups were different on computer achievement after the experimental treatment. It shows that Experimental group taught through ICT skills development program showed higher computer achievement as compared to control group taught through conventional method.

## **EDUCATIONAL IMPLICATIONS**

The present investigation clearly indicates that switching from the conventional lecture of simple chalk and board method of teaching to ICT Skill development program, the level of academic achievement of prospective teachers quite significantly improved. It also implied that ICT skill development program package prove to be more tangible in its effectiveness on achievement than the conventional method of teaching. This package was favourably accepted by the subject teachers and they find it very convenient and useful for classroom teaching

### References

- Alazam, A., Bakar, A. , Hamzah, R. & Asmiran, S. (2012). Teachers' ICT Skills and ICT Integration in the Classroom: The Case of Vocational and Technical Teachers in Malaysia. *Creative Education*, 3, 70-76. doi: 10.4236/ce.2012.38B016.
- Cross, M. & Adam, F. (2007), 'ICT Policies and Strategies in Higher Education in South Africa: National and Institutional Pathways', *Higher Education Policy* 20(1), 73-95.
- Dagiene, V. (2011). Informatics education for new millennium learners. *Informatics in Schools. Contributing to 21st Century Education*, Springer Berlin Heidelberg, 9-20.
- Fuchs, T., Woessmann, I. (2004). "Computers and Student Learning: Bivariate and Multivariate Evidence on the Availability and Use of Computers at Home and at School", CESifo Working Paper. No. 1321. November. Munich.
- Kozma, R. (2005), 'National Policies That Connect ICT-Based Education Reform To Economic And Social Development', *Human Technology*, 1 (2), 117-156.
- Mehra, V., & Omidian, F. (2010). Predicting factors affecting university student's attitudes to adopt e-learning in using Technology Acceptance Model. *International Journal of New Trends in Education of Their Implications*, 1, 33-43.
- Mwalongo, A.(2011). Teachers' perceptions about ICT for teaching, professional administration and personal use. *International Journal of Education and Development using Information and Communication Technology*, 7(3), 36-49.
- Nisar, M. W., Munir, E. U. & Shad, S. A. (2011). Usage and impact of ICT in education sector: A study of Pakistan. *Australian Journal of Basic and Applied Sciences*, 5(12), 578-583.
- Puzziferro, M. (2006). Online technologies self-efficacy, self-regulated learning, and experimental variables as predictors of final grade and satisfaction in college Level online courses. *Dissertation Abstracts International*, 66(12), (UMI No. 3199984).
- Penna, M.P. & Stara, V. (2009). Opinions on computers, and efficacy of a computer based learning: A pilot study, *Education and Information Technologies*, 15(3), 181-204.
- Paechter, M., Maier, M., & Macher, D. (2010). Students' expectations of, and experiences in e-learning: Their relation to learning achievements and course satisfaction. *Computers & Education*, 54, 222-229.
-

- Sabzwari, M., Bhatti, R. & Ahmed, B.(2012). ICT Skills and Computer Self-Efficacy of Research Students: The Case of Institute of Pure & Applied Biology and Biotechnology, Library Philosophy and Practice (e-journal). 844.
- Vronska, N. (2012). The dynamics of ICT integration skills development of the study course it in education. *Engineering for Rural Development Jelgava*, 24.-25.
- Wang, A. Y., & Newlin, M. H. (2002). Predictors of web-student performance: The role of self-efficacy and reasons for taking an on-line class. *Computers in Human Behavior*, 18(2), 151-163.
- Wang, L., Ertmer, P. A., & Newby, T. J. (2004). Increasing pre-service teachers' self-efficacy beliefs for technology integration. *Journal of Research on Technology in Education*, 36(3), 231-250.
- Wanjala, M. M. S., Khaemba, E. N., & Mukwa, C. (2011). Significant factors in professional staff development for the implementation of ICT education in secondary schools: A case of schools in Bungoma District. *International Journal of Curriculum and Instruction*, 1(1), 30-42.