

# Information and Communication Technology in Teaching and Learning: Perspectives on E-Learning at Higher Education Level



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**Abstract:** *Technology can be a powerful tool for transforming learning. To be a successful teacher one should be learner always and should have the mind to comprehend and design new methodologies in their transaction process. E-Learning courseware is an effective model of teaching and learning framework that can enhance academic achievement of students. In this research, E-Learning courseware is developed for B.Ed curriculum and the effectiveness of E-Learning courseware is studied on academic achievement of Prospective teachers studying B.Ed course. 80 students studying B.Ed. course are selected as sample by convenient sampling method. 40 of which are assigned in the experimental group and 40 in the control group. Experimental Group is subjected to E-Learning courseware and the Control group is subjected to Conventional method of teaching, Pre-test – Post Test non-equivalent groups design is used for the study. Achievement test developed and validated by the researcher is administered to measure the academic achievement of the prospective teachers as pre-test and post-test. Effectiveness of E-Learning courseware is studied on academic achievement of Prospective teachers studying B.Ed course. In the analysis of data, t-test and descriptive analysis were used. Results showed that there is significant effect of E-Learning courseware in enhancing the academic achievement of Prospective Teachers. This research opens new avenues in teaching learning process which can empower students.*

**Keywords :** *academic achievement, E-Learning ,Prospective teachers, Technology*

## I. INTRODUCTION

Higher education is experiencing an overhaul in recent times both academically and financially. The quality concerns are over discussed and never end-up in concrete solutions[1]. The system which has been practiced over six decades has been found to be ineffective in producing quality.

The emphasis on quality can be stressed and achieved practically only by integrating technology in each and every walk of life and for a teacher the ideal place to foster the innovation of his/her credentials of teaching in classrooms[2].

The evolution of technology has reached to such a catastrophic phase that educational capabilities are growing and changing every day for the learner and the teacher. The advances in technology has changed all the domains by the introduction of web 5.0 technologies in the classrooms of

the developed countries and in India, we still find it difficult to manage the web 3.0 technologies. The advance in technology alone does not contribute to effective knowledge transfer among the teachers and students. The recent developments in technology should be properly blend with the content and pedagogy so as to integrate a smooth transition of the abundance of knowledge generated through technology to the minds of learners[3]. This situation entrust the teachers to steer the teaching learning process through the integration of technology. Technology has always been at the forefront of human education. From the days of carving figures on rock walls to today, when most students are equipped with several portable technological devices at any given time, technology continues to push educational capabilities to new levels. In looking at where educational methods and tools have come from to where they are going in the future, technology's importance in the classroom is evident now more than ever. As technology advances, an educator's abilities will grow by leaps and bounds.

Technology and teachers are two important realms of education where technology work for the betterment of teacher and the teacher innovate and refine new technologies[1]. But many have a view that technology affects creative teaching. Over the last decade people have proved that this is/was only a misconception created by the senior teachers who are one way or other was technology immigrants than the young generation of competent faculties who are technology native. Even though there has been a rise in technological aid provided to assist teaching during classroom learning such as smart boards and digital books, usage of these materials available for teachers has not been enhanced in a farfetched point of view. There are teachers who cherishes such practices and adapt to this way of learning but major proportion of them seem to be in doubt of its extend of influence over their students and are biased toward the traditional method of teaching. The teaching in the 21st century classrooms are geared by the access to technology catalytic change in the process has been driven by the competency teachers possess to equip with the technology in practice[4].

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Teaching even in the conventional classrooms have moved into a blended mode where primacy has been given to technology or various types of gadgets. E-Learning plays the role of enhancing students' achievement as it is a learning utilizing electronic technologies to access educational curriculum outside of a traditional classroom. Present work is aimed to study the effect of E-Learning courseware in enhancing the academic achievement of Student Teachers pursuing B.Ed. course.

**II. NEED AND SIGNIFICANCE OF THE STUDY**

Twenty-first century demands teachers to be globally competitive and in order to develop such citizen proper education is considered a vital tool. Thus teaching practices has to be improved to make the student well versed in case of critical thinking, multimedia communication and their problem analysis and solving skills. In addition learners should gain confidence that they are capable of succeeding in these complex mechanized societies. E-Learning Technology is an invincible tool which could transform teaching for better and it helps to encourage and strengthen relationship between educators and students. It has the capability to provide education which is much more accessible to all type of learners. Our schools and universities should explore the chances of utilizing the possibilities of integrating technology in their classrooms. Educators should be partners in the learning process, who gain new skills and knowledge alongside the students. Educators must provide a platform for their students to thrive and to provide this in a efficient and effective manner applications of technology is the most successive option. Furthermore, education stakeholders should commit to working together to use technology to improve our education system. The present higher education classrooms have infrastructure that includes wireless technologies, remotely accessible switches and routers, and collaboration tools to create an "intelligent" environment for the invention of real-world Internet of Things (IoT) products, services, and experiences by students. Creation of content takes place in different venues, and the dissemination of knowledge happens in many other areas. The researches in our present education system are mainly focused on the integration technology as an assistive tool for the classroom exercises.

To be a successful teacher one should be learner always and should have the mind to comprehend and design new methodologies in their transaction process. E-Learning is a new model of learning framework that can be effectively integrated for specific learning purposes like the professional development of teachers. E-Learning provides us to re-imagine our learning experiences purposefully utilizing the technological tools available at present in our domains. The insight on redesigning our strategies apt with technology specially attributes to the restructuring of the pedagogical practices and content delivery methods in tune with technology. Teachers influence students in many ways, they act not only as their facilitator but also as a mentor and a guide. Thus, it is evident that technology is merely a tool and the ways in which teachers handle and utilize it to encourage and inspire their students is what important. In this regard E-Learning courseware plays an important role.

**III. OBJECTIVES OF THE STUDY**

The objectives of the present study are

- To develop E-Learning courseware for Prospective Teachers
- To implement E-Learning courseware among Prospective Teachers
- To assess the Academic achievement level among Prospective Teachers before and after implementation of E-Learning courseware

**IV. METHODOLOGY**

Methodology in this study includes preparation of E-Learning courseware and an experimental study to find the effectiveness of E-Learning courseware on academic achievement of Prospective Teachers. E-Learning courseware was prepared for physical science in B.Ed course which includes identification of content and designing most suitable pedagogical approaches for its dissemination blended with technology. The experimental study includes sample of undergraduates enrolled in B.Ed. degree programme in Alagappa University College of Education, Karaikudi, Sivagangai district, Tamil Nadu, India. There is a potential population of 200 students in both first and second year. 80 students from second year will be selected by convenient sampling method. 40 students are assigned in each experimental and control group. In this study Pre-test – Post test non-equivalent groups design will be used. Achievement test in physical science was structured and validated by the investigator as a tool for pre and post test. Pre-test was conducted for both the groups to assess the level of academic achievement. Then the Experimental Group is subjected to E-Learning courseware and the Control group is subjected to Conventional method of instruction. Then post-test was administered to both the groups to find out the level of academic achievement. The effectiveness of E-Learning courseware on academic achievement among Prospective Teachers was studied. Tools used in this study are E-Learning courseware and achievement test. The data analysis procedures in this study are t-test and descriptive analysis. The dependent variable is academic achievement and the independent variable is E-Learning courseware.

**V. ANALYSIS AND INTERPRETATION**

**Hypothesis**

There is significant difference in the post-test scores between control and experimental group in academic achievement.

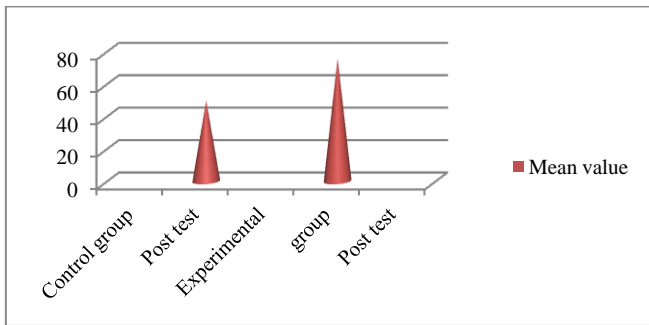
**Table- I: post-test academic achievements scores of control and experimental group of Prospective Teachers**

Test	N	Mean value	S.D	't' Value	Level of significance
Control group Post test	30	49.67	14.50	7.51	Significant at 0.01 level
Experimental group Post test	30	75.77	12.34		



The above table shows that, control and experimental group mean scores value is 49.66 and 75.76 respectively with a standard deviation of 14.50 and 12.34 respectively. The experimental group mean scores are higher than the control group mean scores. The calculated value ( $t=7.51$ ) is greater than the critical value of 2.576 at 0.01 level.

So the hypothesis is accepted and concluded that there is significant difference between post-tests mean scores of Control and Experimental group in academic achievement of Prospective Teachers. Therefore, E-Learning courseware was found effective in enhancing academic achievement among Prospective Teachers.



**Fig.1. post-test achievements scores of control and experimental group of Prospective Teachers**

## VI. RESULT AND DISCUSSION

When the experimental group of prospective teachers taught with E-learning courseware, their academic achievement found to be increased than the control group of prospective teachers taught with conventional method of teaching. Thus it is proved that E-learning courseware will definitely enhance the academic achievement of students.

## VII. CONCLUSION

The need of educational technology is growing in the classroom. It plays an important role in students' learning and acquiring various cognitive knowledge. The potential of E-learning courseware includes bringing conceptual clarity, transparency in entire educational processes and students' academic achievement which has been proved in this research. The results obtained stressed the need of the educational technology to be incorporated into teaching learning processes. Instruction for pre-service teachers should include E-Learning courseware so that potential Teaching community will be ensured.

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