IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Effectiveness Of Teaching Through Computers In Teacher Education Colleges

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Abstract

The present study aims to examine the effectiveness of teaching through computers in teacher education colleges. Relevant Indian and international studies were reviewed to provide a theoretical foundation. The study employed the descriptive survey method. A sample of 100 student teachers from teacher education colleges was selected using a stratified random sampling technique. A questionnaire was developed and administered to gather student teachers' opinions on the effectiveness of computer-based teaching. The collected data were analyzed using statistical techniques such as mean, standard deviation, t-test, and F-test. Scores of different groups were compared based on variables including gender, qualification, locality, and methodology. The findings were interpreted in the context of earlier research, and appropriate suggestions and recommendations for future studies were also provided.

Key Words: Computer-assisted teaching, ICT in education, Digital learning,

Introduction:

Information and communication technologies (ICTs) are major factor in shaping the new global economy and producing rapid changes in society. The new ICT tools have fundamentally changed the way people communicate and do business. They have produced significant transformations in industry, agriculture, medicine, business, engineering and other fields. They also have the potential to transform the nature of education. In education, to reap the full benefits of ICTs in learning, it is essential to include ICT in pre – service and in – service teaching and introduce pedagogies and tools for learning. Teacher education institutions must work closely and effectively with K – 12 teachers and administrators, national or state educational agencies, teacher unions, business and community organizations, politicians and other important stakeholders in the educational system. Teacher education institutions also need to develop strategies and plans to enhance the teaching – learning process within teacher education programmes prepared to use the new tools for learning.

Role of ict in Teacher Education:

In present scenario, teachers need to help their students in, how to learn, how to grow in future, how to develop study skills, how to conduct fundamental research, how to examine, evaluate and assess information and also how to question and then dismantle unauthentic structure of knowledge and cognition if need be this is necessary if the teachers really want to survive in the ICT world of education. All these expectations may be met only through need – based, goal oriented and meaningful in – house discussion, conference, symposia workshops, refresher and orientation causes, crash courses, capsule course and subject based courses, inter disciplinary and holistic approaches to education and quality research and by enriching the existing libraries and making use of the user friendly ICT with contextually appropriate and firm pedagogical scaffolding. The teacher educators and individual teacher ought to sincerely and persistently work hard toward this goal.

Future of ICT in Teacher Education:

ICT includes web, TVS, NET, PCS and web – based education that offers accessibility, flexibility and innovativeness in teaching and learning ICT integrated teacher Education is more important to Indian education system that is committed to maintain global partnership as well as leadership in knowledge based society. These developments in the field of computer must be attributed to the credit of our education system. The major contribution in this area was of our computer education imparted by IIT's universities and private bodies. The contribution of IIT's and universities was huge in terms of the supply of experts in the area of hardware and networking. The universities offering computer education in Andhra Pradesh in regular mode are many like, the Andhra University, Nagarjuna University, Sri Venkateswara University. But when the time finally came to introduce computer education from the school level, the pioneering efforts of central government and state government have brought computer education to the rural government school students.

Need and significance of the study:

The future society in India shall be a knowledge oriented, technology driven as fast changing society. The students shall be requires to continuously updated their knowledge through computers. To improve the efficiency of students and to make them acquainted with the modern development in each subject, it is very necessary to have computer education in the secondary schools. The curriculum and syllabus should be upgraded as per the changing requirements of the modern world in order to face the challenges of the 21st century more effectively by our future generation.

Objectives of the study:

1. To study the Effectiveness of Teaching through Computers in Teacher Education Colleges.
2. To study the significant difference among the perceptions of student teachers based on their demographic variables i.e., gender, qualification, locality and methodology towards Effectiveness of Teaching through Computers in Teacher Education Colleges.

Hypotheses of the present study

1. There is no significant difference between the perceptions of male and female category student teachers towards Effectiveness of Teaching through Computers in Teacher Education Colleges.
2. There is no significant difference among the perceptions of student teachers based on their qualification towards Effectiveness of Teaching through Computers in Teacher Education Colleges.
3. There is no significant difference among the perceptions of student teachers based on their locality of instruction towards Effectiveness of Teaching through Computers in Teacher Education Colleges.
4. There is no significant difference among the perceptions of student teachers based on their methodology towards Effectiveness of Teaching through Computers in Teacher Education Colleges.

Review of Related Literature:

Florence Y. Odera (2011) studied on "The Role of Heads of Department in the implementation of Computer Integrated Education in Secondary schools in Nyanza Province, Kenya". This article describes the results of a study undertaken to investigate the role played by Heads of departments (HODs) in the implementation of computer – integrated education (CIE) in teaching and learning by the departmental staff. A total of 89 of89 HODs drawn from rural, urban and suburban areas participated in this research. A questionnaire was designed and used to collect data on; the role of HODs, use of computers by departments, departmental computer policy, training of HODs in the use of computers, availability of computers and support materials, access, attitudes and views of HODs about the value of computer as a tool for instruction. Data analysis combined qualitative and quantitative methods. The findings indicated that HODs played introduced and included in departmental teaching program. This included planning, organization and management of the computer – learning environment. Further results revealed that 23% of HODs had a departmental policy for the use of computers but 77% had not formulated computer policy. 51% had departmental funds for computer education, while 43% had no funds allocated to them, but 6% did not respond. Other results indicated that 53% HODs were trained in the use of computers, but 74% had no training. The findings also showed lack of suitable software packages and 54% of the respondents agreed that computer was a very valuable tool for instruction.

James A. Kulik, Chen-Lin C. Kulik, (2020) studied on "Effectiveness of Computer-based College Teaching: A Meta-analysis of Findings ".This review used Glass' (1976) meta-analytic techniques to integrate findings from 59 independent evaluations of computer-based college teaching. The meta-analysis showed that computer-based instruction made small but significant contributions to the course achievement of college students and also produced positive, but again small, effects on the attitudes of students toward instruction and toward the subject matter they were studying. Computer-assisted instruction also reduced substantially the amount of time needed for instruction. In general, the meta-analysis found little relationship between study findings and design features of the experiments, settings for the studies, or manner and date of publication of the findings.

Shrish Kumar Tiwari et al., (2023) studied on "Use of ICT in Developing Effectiveness of Teaching Skills for Teachers in Higher Education". The widespread use of new technologies in our increasingly digitalized society has elevated familiarity with digital platforms to the status of a core competency in virtually every field, not just the workplace. Accordingly, educational institutions shoulder the duty of passing these competencies on to the next generation of professionals through their pupils. In this regard, instructors play a pivotal role, as their proficiency with new technologies is a necessary condition for the successful deployment of such abilities. To further investigate the relationship between internal and external teacher professionalization, the current research project uses data from the IEA International Computer and Information Literacy Study 2022 (ICILS 2022) to conduct secondary analyses. When contrasting the educational systems of India and Sri Lanka, innovative technological classroom implementations are highlighted. Using a latent class analysis, we may categorize educators based on their interest in and commitment to professional learning opportunities connected to educational technology. This categorization is then used to examine other variables that have been found to correlate with educators' usage of technology in the classroom. The instructors' own confidence in their ability to use technology effectively in the classroom is one factor. There appear to be two distinct sorts of educators in both nations. Teachers who take part in professional development are more likely to utilize computers in the classroom, to place a higher priority on the development of students' ICT abilities, and to have a higher opinion of their own competence in this area. Sri Lankan teachers use computers more often and put more emphasis on teaching ICT skills than their Indian counterparts. However, Indian teachers who take part in professional development say they feel more confident in their own ability to use technology in the classroom.

Design of the Study

The researcher followed the survey method of the descriptive research. For this investigation the questionnaire had been considered as a suitable tool for the collection of data. The questionnaire consisted of 36 statements as perceived by the Students.

Reliability and Validity:

For the purpose of the present study the split- half method was adopted. The split-half reliability co-efficient for the Effectiveness of Teaching through Computers in Teacher Education Colleges by student teachers was 0.86 and for the validity of the scale it is based on the content and construct validity.

Administration of Tool:

The tool was administered among student teachers, necessary instructions were given in filling the tool. All the respondents followed the instructions and filled the tool by reading the all the items carefully.

Data Collection:

The investigator personally visited the sampled schools and administered the tool among the sampled respondents. The data collected through questionnaire and Interview schedule were used for analytical purposes.

Statistical Techniques Used:

The statistical techniques used mainly for analytical purposes were means, standard deviations were used To study the significant differences in between the socio-economic variables, 't'-test and 'F-test (ANOVA) have been used by the investigator with the help of Statistical Package for Social Sciences (SPSS).

Table 1: Overall perceptions of student teachers towards effectiveness of Teaching through Computer in Teacher Education Colleges.

N	Min.	Max.	Mean	Mean Percent	Std. Dev.
100	0	36	30.46	84.61	3.44

It is observed that from Table 1 the student teachers expressed positive perceptions towards effectiveness of Teaching through Computer in Teacher Education Colleges. The mean and mean percentages are 30.46 which are 84.61% respectively.

Table 2. Significant difference among the perceptions of student teachers based on their demographic variables towards Effectiveness of Teaching through Computers in Teacher Education Colleges

Variable	Category	N	Mean	Std. Dev.	t/F-value	p-value
Gender	Male	35	31.40	3.50	2.04*	0.04
	Female	65	29.95	3.32		
Qualification	Degree	68	30.38	3.15	2.95**	0.00
	PG	32	32.63	4.02		
Locality	Urban	66	30.64	3.48	0.71^{NS}	0.48
	Rural	34	30.12	3.37		
Methodology	Biological Science	34	29.76	3.53	3.28**	0.00
	Mathematics	39	32.05	3.05		
	Social Studies	27	30.48	3.79		

There is no significant difference between the perceptions of student teachers based on their locality towards Effectiveness of Teaching through Computers in Teacher Education Colleges.

There is a significant difference among the perceptions of student teachers based on their gender towards Effectiveness of Teaching through Computers in Teacher Education Colleges and male category student teachers perceived high than that of the rest.

There is a significant difference among the perceptions of student teachers based on their qualification towards Effectiveness of Teaching through Computers in Teacher Education Colleges and PG qualified of student teachers perceived high than that of the rest.

There is a significant difference among the perceptions of student teachers based on their methodology towards Effectiveness of Teaching through Computers in Teacher Education Colleges and Mathematics methodology student teachers perceived high than that of the rest.

Findings of the study:

1. There is no significant difference between the perceptions of student teachers based on their locality towards Effectiveness of Teaching through Computers in Teacher Education Colleges.
2. There is a significant difference among the perceptions of student teachers based on their gender towards Effectiveness of Teaching through Computers in Teacher Education Colleges and male category student teachers perceived high than that of the rest.
3. There is a significant difference among the perceptions of student teachers based on their qualification towards Effectiveness of Teaching through Computers in Teacher Education Colleges and PG qualified of student teachers perceived high than that of the rest.
4. There is a significant difference among the perceptions of student teachers based on their methodology towards Effectiveness of Teaching through Computers in Teacher Education Colleges and Mathematics methodology student teachers perceived high than that of the rest.

Educational Implications:

1. The uses of computers in the classroom are discussed and the implications of their uses in an information –based society are addressed.
2. Colleges and universities are also moving to include computer training for teachers at both pre-service and in-service levels.
3. Teachers should bring awareness among students making them to realize the benefits about learning through computers.
4. Proper facilities should be developed in the educational institutions in the usage of computer technology.
5. Implementation of modern methods in teaching and learning processes.

Suggestions:

1. Research can be conducted on the process and methodology of instruction of computers at various levels in college education n and the curriculum for each stage.
2. Qualitative Research should be conducted on the Integration of Computer Education in college Education and the overall effectiveness on Students Academic Achievement.
3. Research should be taken up on the Self Learning Styles and Overall Perception Abilities of Teachers and Students who use computes as a tool at home and college.
4. A similar study can be conducted on a large scale comparing the performance of various States and also Cities which have higher percentage of Modern and Technically Advanced schools.

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