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Role, Effectiveness with Application of ICT in 21st Century's in Teacher Education

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Abstract:

Information and communication technologies (ICTs) are a major factor in shaping the new global economy and producing rapid changes in society. Within the past decade, 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. For education to reap the full benefits of ICTs in learning, it is essential that pre-service and in-service teachers have basic ICT skills and competencies. Teacher education institutions and programmes must provide the leadership for pre-service and in-service teachers and model the new pedagogies and tools for learning. They must also provide leadership in determining how the new technologies can best be used in the context of the culture, needs, and economic conditions within their country. To accomplish these goals, 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 and to assure that all future teachers are well prepared to use the new tools for learning.

Introduction:

The 21st century is the age of Information Communication Technology (ICT). During the last few decades there has been a tremendous growth in the use of ICT, which has made a dynamic impact on industries, business, societies, lives of people and education. Now the educational institutions all over the globe are integrating ICT with the teaching learning process in order to provide knowledge and skills to the learners to meet the challenging educational environment. According to Jeelani (2011) "It is only through education and the integration of ICT in education that one can teach students to be participants in the growth process in this era of rapid change." And also educators, researchers and thinkers have taken up the challenges of using ICT since the 1980s with varied success. The advent of the Internet and the World Wide Web (W.W.W) has pressured new productivity and service demands as well as expectations on the endeavours although research to guide best practices remains scant and elusive.

Keywords: ICT, technology, pre-service, in–service, student teacher, teacher training, e-learning.

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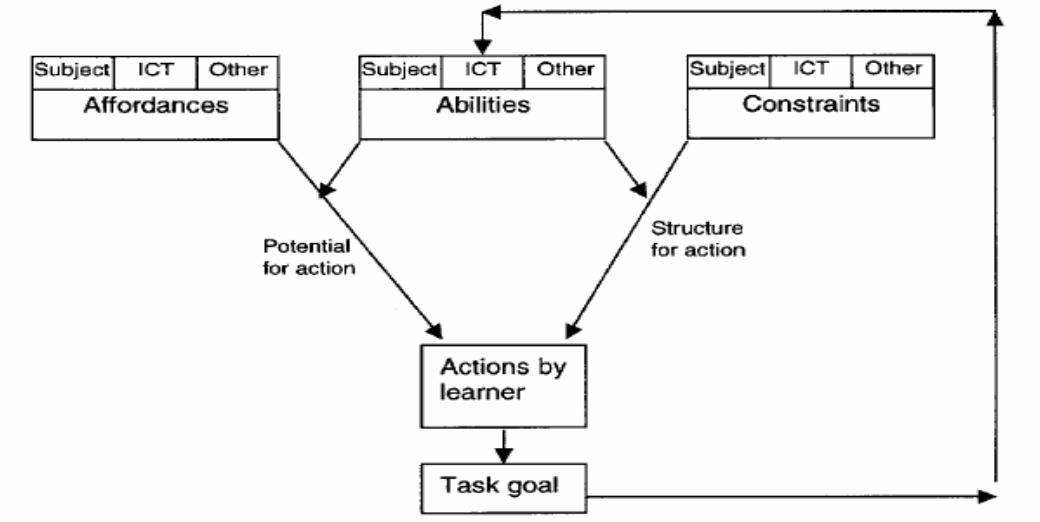


Figure 1: represents the main relationships during classroom activity with ICT

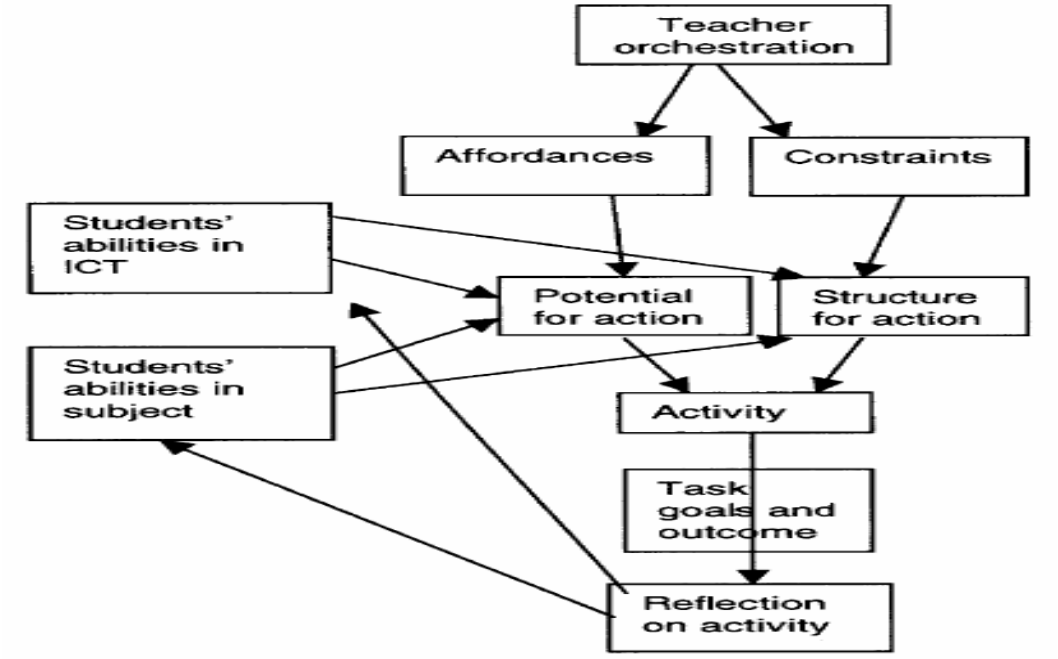


Figure 2. Influences on classroom activity.

Objective of the study:

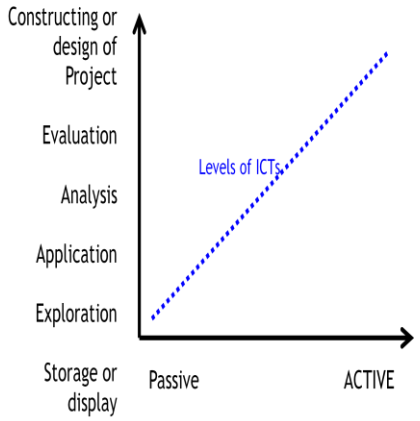
To find out the roles and effectiveness and application of ICT in 21st Century's Teacher Education.

Methodology:

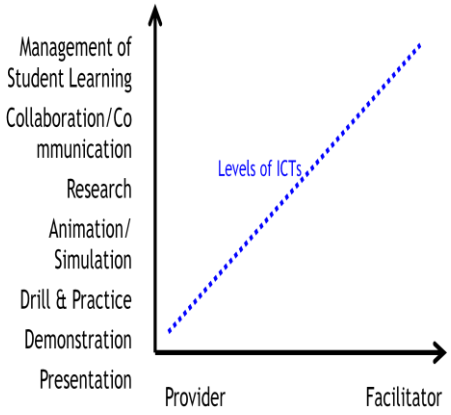
This present study is based on secondary sources like books, Articles, Journals, Thesis, University News, Expert opinion and websites etc. The method used is Descriptive Analytic method and Experimental Research Methodology.

Why do we use ICT in teacher Education?

Now Education is based on child centric education. So the teacher should prepare to cope up with different technology for using them in the classroom for making teaching learning interested. For effective implementation of certain student-centric methodologies such as project-based learning which puts the students in the role of active researches and technology becomes the appropriate tool. ICT has enabled better and swifter communication; presentation of ideas more effective and relevant way. It is an effective tool for information acquiring-thus students are encouraged to look for information from multiple sources and they are now more informed then before. So for this reason ICT is very much necessary for Teacher Education.



LEARNER'S ROLE



TEACHER'S ROLE

Different Strategies for applying ICT in Teacher Education:-

i) Providing adequate infrastructure and technical support.
ii) Applying ICT in all subjects.
iii) Applying new Pre-service teacher Education curriculum.
iv) By using application software, using multimedia, Internet e-mail, communities, understanding system software.

Role of ICT in 21st Century's Teacher Education:-

1) ICT helps teachers in both pre-service and in-Service teachers training.
2) ICT helps teachers to interact with students.
3) It helps them in preparation their teaching, provide feedback.
4) ICT also helps teachers to access with institutions and Universities, NCERT, NAAC, NCTE and UGC etc.
5) It also helps in effective use of ICT software and hardware for teaching –learning process and future occupation and social life.
6) It helps in improve Teaching skill, helps in innovative Teaching.
7) It helps in effectiveness of classroom, and practice teaching.

8) It also helps in improving professional Development and Educational management as well as enhances Active Learning of teacher Trainees.
9) It is now replacing the ancient technology.
10) In order to introduce ICT in pre-service teacher education different methods and strategies are applied.
11) Various technology based plans are used to help the teachers for their practice teaching and used independently from the subject matter.
12) ICT prepares teacher for the use of their skills in the real classroom situation and also make students for their future occupation and social life.
13) ICT used as an assisting tool for example while making assignments, communicating, collecting data & documentation, and conducting research. Typically, ICT is used independently from the subject matter.
14) It is a tool for teaching and learning itself, the medium through which teachers can teach and learners can learn.
15) ICT as a popular tool for organisation and management in Institutions.
Teachers must provide technological support to learn using motion picture, animation, simulation training which helped student teachers to give model presentation.

Consider an real life example of "Effectiveness of ICT in Teacher Education Programme"
IMPORTANCE OF THE STUDY:- According to the Revised Draft on National Policy on Information Communication Technology in School Education prepared by the Department of school Education. ICTs are all devices, tools, content, resources, forums and services, digital and those that can be converted into or delivered through digital forms, which can be deployed for realizing the goals of teaching, learning, enhancing access to and reach of resources building of capacities planning as well as management of educational system. Hence every teacher should have interest in the use of ICT in teaching. It is expected that the students who are studying in B.Ed courses should have more interest in using ICT in teaching and learning and also they should realize it's effectiveness, as they are the teachers of tomorrow . The experiment is done regarding effectiveness of ICT in B.Ed college trainees.

STATEMENT OF THE STUDY:- Study on Effectiveness of ICT in Teacher Education Programme.

OBJECTIVES:-

1. To find out the instructional effect of ICT on the basis of the students' achievement.
2. To find out the instructional effect of Conventional method on basis of students' achievement.
3. To compare the effectiveness of the ICT and Conventional method in teaching of Educational Measurement and Evaluation.

HYPOTHESES:

Ho1: There will be no significant difference between the achievement score of the students **taught** through Instructional Material (CD,DVD) and Conventional method in the subject Educational Measurement and Evaluation.

Ho2: There will be no significant difference between the achievement score of the students in **theoretical part** taught through Instructional Material and Conventional method.

Ho3: There will be no significant difference between the achievement score of the students in **Statistical problems part taught** through Instructional Material and Conventional method.

METHODOLOGY: The investigator was used Experimental Research Methodology in this study. And the equivalent group method was used in this research study. Taken one hundred students as sample of this study and divided them into two groups of fifty (50) students each as controlled and experimental group.

PROCEDURE: For conducting the study Unit tests were prepared on selected topic of Educational Measurement and Evaluation and they were administered on both groups after teaching by Conventional method to controlled group and teaching method through Instructional material to the experimental group.

STATISTICALS TECHNIQUES: Both descriptive and inferential statistics were employed for analysis of data. The descriptive statistics such as Mean and S.D were used. Inferential statistics such as t-test was employed. 't' value was calculated to know the significant difference of achievement score of the students taught through Instructional material and conventional method.

The statistical data is given below:

TABLE -1: Comparison of post-test Achievement

Method of Teaching	Mean	S.D.	't' value	Remarks
conventional Method	8.01	5.42	3.67	Significant at 0.01 and 0.05 level of significance.
Instructional Material	9.89	4.32		

It is evident from the above table that calculated 't' value is 3.67 which is greater than the table value at 0.05 and 0.01 level of significance. Therefore it is proved that Achievement of students teaching by Instructional material is significantly differing from teaching by Conventional Method. Hence Ho 1 is rejected.

TABLE-2: Comparison of post-test Achievement on Theoretical Part

Method of Teaching	Mean	S.D.	't' value	Significance
Conventional Method	8.25	2.56	7.93	Significant at 0.05 and 0.01 level of significance.
Instructional Material	11.03	1.71		

It is evident from the above table that the calculated 't' value is greater than the table value at 0.05 and 0.01 level of significance. Therefore it is proved that there is a difference of students'

Achievement between Conventional teaching method and Teaching method by Instructional material on the basis of theoretical part.

Table -3: Comparison of post-test Achievement on Statistical Problems

Method of Teaching	Mean	S.D.	't' value	Remarks
Conventional Method	7.31	2.34	1.87	
Instructional Material	6.74	2.12		

The above table indicated that the calculated 't' value is 1.87 which is less than the table value at 0.05 level of significance and 0.01 level of significance. Therefore it is proved that there is no difference of students' Achievement between Conventional teaching method and teaching by Instructional Material on the basis of statistical problems Hence **Ho-3 is accepted**.

MAJOR FINDINGS:

There is **significant difference** between the mean score of the achievement of the students **taught** and **Theoretical part** and **no significant difference** in **Statistical problems** taught through Instructional Material and Conventional method in the subject Educational Measurement and Evaluation.

Output of Problem:

I) Teaching through ICT is more effective than the Traditional teaching method. ii) Teaching Theory part through ICT is more effective in terms of enhancing achievement of students and to teach problems of statistics, both traditional method and using Instructional material help the students to recall the formulae and different steps of solution.

EDUCATIONAL IMPLICATION:

ICT contributes significantly to the classroom teaching learning process as it helps the teacher to make the teaching learning process more dynamic ICT also renews the learners' enthusiasm because it develops the ability of self learning and individual interaction. At present it has taken a prominent place within the school curriculum. Its place in learning for the majority of children is most likely to occur in the classroom and, for an increasing number, at home. The role of ICT within the school curriculum is to enhance the learning experience of the learners, to prepare them to use new technologies and to help them to develop the essential skills to participate in the sophisticated technological world.

Conclusion:-

Teaching occupies an honourable position in the society. ICT helps the teacher to update the new knowledge, skills to use the new digital tools and resources. By using and acquire the knowledge of ICT, student teacher will become effective teachers. ICT is one of the major factors for producing the rapid changes in our society. It can change the nature of education and roles of students and teacher in teaching learning process. Teachers in India now started using

technology in the class room. Laptops, LCD projector, Desktop, EDUCOM, Smart classes, Memory sticks are becoming the common media for teacher education institutions.

Ultimately conclude that we should use information communication Technology (ICT) in Teacher Education in 21st Century as because now teachers only using this can create a bright future for students, which is our main goal in teaching process.

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