EFFECTIVENESS OF ICT IN TEACHER EDUCATION PROGRAMME

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Abstract

Education is a powerful weapon to change the world. Technology has become an essential part of education at all levels because the revolution of Information Technology has opened up new horizons for education. Technology has the potential to 'bridge the knowledge gap' in terms of improving of quality of education. Teacher Education system is an important vehicle to improve quality of education as well as the quality of teacher and working condition of teacher. The Teacher Education Programme focuses on pedagogy and methodology as well as instruction, using the correct technological tools. In this regard, the researcher aimed in the present study to find out the effectiveness of ICT in comparison to conventional teaching method .It was an experimental study conducted on one hundred (100) students of Uttar Banga Women's B.Ed College (B.Ed) in the district of Malda ,West Bengal in the subject of teaching Educational Measurement and Evaluation. The results reveal that the use of ICT is more effective for the theoretical part in the subject Educational Measurement and Evaluation than the conventional method. But it is not more effective for problems in Educational Measurement and Evaluation

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 has pressured new productivity and service demands as well as expectations on the endeavours although research to guide best practices remains scant and elusive.

The phrase Information and Communication Technologies (ICT) refers to forms of technology that are used to transmit, process, store, create, display, share or exchange information by electronic means. In the words of Toomey, 'ICT generally relates to those technologies that are used for accessing, gathering, manipulating and presenting or communicating information'. It means ICT applied to the creation, selection, transformation, distribution and storage of many kinds of information.

RATIONALE OF THE STUDY:-

Nowadays computer is considered as a super teaching machine and its use in education has been tried as an innovation. And also it has proved its teaching efficiency in many developed countries. So

Information Communication Technology has been added essentially in the 21st Century as an important area of education. According to the Revised Draft on National Policy on Information Communication Technology in School Education prepared by the Department of school Education, MHRD in 2011.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. It makes education productive, gives instruction a more powerful and scientific bases, extends the educational opportunities to the masses and creates a new learning environment and information-rich society. It is used as a learning tool for teacher, as the object of study and as a planning and management tool. It has the potential to remove the barriers that are causing the problems of low rate of education in any country. 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 . So the investigator decided to study effectiveness of ICT in teacher education. As the investigator is a lecturer of a B.Ed college, so she decided to study regarding effectiveness of ICT in her own trainees. On the basis of such problem the researcher titled the study as follows.

REVIEW OF RELATED LITERATURE:

Kmalanayan (2008) designed a study on "Implications of Information Technology for teacher education and research". It was pointed out that information technology in education is created the need for all teacher education faculties to be proficient in the use and integration of ICT into mainstream teacher education programme delivery.

Anuar, Zakaria, Noor, and Othman (2016) led among the Art and Design Education students at Faculty of Education, University Technology MARA (UITM) to discover their availability to utilize e-Learning in Visual Art Education (VAE). The information was accumulated from 27 last year learners in the Art and Design Education program. The survey measured their Technological Knowledge (TK), Content Knowledge (CK) and Technological Pedagogical Knowledge (TPK). The general discoveries on TK demonstrated that the learners can learn with innovation or technology effectively and have specialized aptitudes expected to utilize innovation in the teaching and learning of VAE. Lion's share of the educators concurred that they have adequate CK and could consider different methods for utilizing innovation to create comprehension of VAE. The discoveries in this examination plainly uncovered that TPACK is a decent stage to quantify educators' availability towards utilizing innovation in the teaching and learning of VAE. **Baran, Bilici and Uygun (2016)** underscored on utilizing innovations or technology in science training, the need has developed to get ready science educators with powerful innovation or technology coordination abilities. To address this need, a TPACK-based PD program was planned and actualized as a component of preservice teacher preparing venture in Turkey. The investigation also uncovered that because of going to the PD, educators' TPACK expanded and supported over a time of one year. Research and viable ramifications for planning pre-service science educator preparing programs are shared.

Juniu, Scrabis-Fletcher, Zullo, and Russo (2015) inspected pre-service Physical Education educators' convictions about, and execution of innovation or technology in their classes with an end goal to evaluate which techniques for direction about

innovation may give the best learning. The information examinations uncovered that there is a critical relationship between the measure of TPACK pre-service educators saw having, and the innovation that physical PETE staff demonstrated including different strategies for execution.

Kopcha and Leftwich, (2014) inspected the TPACK information and execution of 27 early adolescence and basic instruction preservice educators in the wake of participating in a semester-long course on innovation incorporation or technology incorporation. TPACK learning and execution was measured as their execution on circumstance particular lesson designs. The course was novel in that a key instructional procedure was to present utilization of defence based figuring out how to connect with preservice educators in basic leadership about innovation mix under classroom-particular contemplations and requirements. Analyzing preservice educators' TPACK under case-based learning can illuminate the way in which innovation combination courses are created to upgrade TPACK and preservice educators figure out how to incorporate innovation into their lessons.

Campbell and Dobozy (2013) examined two regions that are developing as pioneers in the field; in particular Learning Design and Technological, Pedagogical and Content Knowledge, which is additionally alluded to as TPACK. By investigating these two zones it is conceivable to translate where the two territories cross and to advance the writing on the two regions. Learning Design is a sub-field of eLearning, while TPACK has picked up a lot of cash subsequent to being created by Mishra and Koehler (2006) prior this century. This paper exhibits that by utilizing these two systems together it takes into account a more grounded epistemological establishment and better plan for teaching.

Standholtz et al. (1997) detailed that there were sure changes in understudy mentality. Their advantage and inspiration regularly reached out to the most recent week of school and as learners wound up plainly included in taking a shot at PCs, the time they spent on assignments and undertakings frequently expanded. Learners' energy and intrigue brought about more noteworthy on-errand conduct and they were very required in their task and as often as possible ready to work with little help. The venture expanded understudy activity as they worked past the prerequisites of their assignments, and freely investigated new applications and grew new abilities. Understudy experimentation and hazard taking conduct expanded subsequently the viability of educator increments.

AN OVERVIEW

After reviewing the related literature, it has been found that most studies stress the use of ICT as a facilitating strategy. It helps in enhancing the teaching skills of preservice teacher educators. ICT has totally shifted the concept of use of computer in Teaching-Learning. It has also been determined by various researchers that ICT has a unique characteristics of communicating different concepts and holding the attention of students, which in turn increases the Self-Efficacy and Effectiveness of teachers. ICT is a learner-centred approach. Various investigators have found its power of presentation more effective due to the integration of Technology, Pedagogy and Content. On the other hand, if we specifically explore the utility of ICT-Programme for pre-service teacher educators, many connected issues will still found unfold. Thus, there is a need of lots of work to be done in this direction. The present study is an attempt to support previous studies and finding the new directions also. Perhaps, this study will be helpful in revealing the importance of ICT-Programme on Technological, Pedagogical & Content Knowledge (TPACK), Teacher Self-efficacy and Teaching Effectiveness of pre-service teacher educators and it will also stimulate the teaching-learning process. Therefore, the investigator found it suitable to conduct a

study on effectiveness of ICT-Programme on Technological, Pedagogical & Content Knowledge (TPACK), Teacher Self-efficacy and Teaching Effectiveness among pre-service teacher educators.

STATEMENT OF THE STUDY

"STUDY ON EFFECTIVENESS OF ICT IN TEACHER EDUCATION PROGRAMME".

OBJECTIVES OF THE STUDY

The objectives of the study were as follows

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 OF THE STUDY

In order to achieve the objectives of the study the following hypotheses were formulated.

Ho-1: "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".

Ho-2: "There will be no significant difference between the achievement score of the students in theoretical part taught through Instructional Material (CD,DVD) and Conventional method in the subject Educational Measurement and Evaluation" .

Ho-3: "There will be no significant difference between the achievement score of the students in Statistical problems part taught through Instructional Material (CD,DVD) and Conventional method in the subject Educational Measurement and Evaluation".

METHODOLOGY:

The investigator was used Experimental Research Methodology in this study. And the equivalent group method was used in this research study. She has 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	S/N.S/HS
Teaching by conventional Method	9.05	6.42	3.57	Significant at 0.01 and 0.05 level of significance.
Teaching by Instructional Material	8.79	4.72		

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	S/N.S/HS
Teaching by Conventional Method	8.25	2.56		Significant at 0.05 and 0.01 level of significance.
Teaching by Instructional Material	11.03	1.71	7.93	

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	S/N.S/HS
Teaching by Conventional Method	7.63	2.24	1.57	Not Significant at the 0.05 Level
Teaching by 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.

MAIN FINDINGS:

1) There is significant difference between the mean score of the achievement of the students taught through Instructional Material and Conventional method in the subject Educational Measurement and Evaluation.

2) There is significant difference between the mean score of the achievement of the students in Theoretical part taught through Instructional Material and Conventional method in the subject Educational Measurement and Evaluation.

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

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.

The present research demonstrates that in transforming from a conventional chalk and talk technique to an ICT utilized showing strategy not just enhances classroom instructing but rather additionally enhances their Technological, Pedagogical and Content Knowledge, Teaching Self–Efficacy and Teaching Effectiveness. It suggests that ICT utilized showing technique turns out to be more unmistakable in its efficacy on Technological, Pedagogical and Content Knowledge (TPACK), Teacher SelfEfficacy (TSE) and Teaching Effectiveness (TE) than the conventional classroom approach. It appears to be more functional and is broadly satisfactory to pre-benefit educator teachers. It additionally lessens singular contrasts and empowers a wide range of pre-benefit educator teachers to perform better. It has numerous different favourable circumstances: a). ICT can be utilized as a substitute for practically anything in the class like pencil, book, TV, reference book, guide, library and some more b). ICT can be utilized as a supplement in expansive gathering classroom educating. It is less demanding to screen pre-benefit educator in ICT than in the customary classroom setting. c). ICT can be utilized independently, in little or extensive gatherings or by the educators with the entire class. d). ICT proposes another part for the educator. It acclimated the educator to being the sole wellspring of data for instructing the aloof learner educators in the classroom. e). ICT can be utilized to upgrade parts of instructing through introduction of data in various courses and in various structures. Student educators can control and roll out improvements to data on PCs with the goal that they can create comprehension of the connection between various sorts of data or through the way toward changing that data drastically. ICT used teaching can revamp the traditional teaching process and make it more effective. The findings suggest that ICT can play a vital role in enhancing Technological, Pedagogical & Content Knowledge (TPACK), Teacher Self-Efficacy and Teaching Effectiveness (TE) of pre service teacher educators. So, educationists, policy planners and administrators need to develop more sophisticated understanding of the conditions, circumstances, means & mechanisms through which ICT can be closely connected to the young pupil teachers and their Technological Pedagogical and Content Knowledge (TPACK), Teacher Self-Efficacy and Teaching Effectiveness (TE).

CONCLUSION:

"ICT assumes a key part in the cutting edge arrangement of training. Pre-benefit educator teachers think that its less demanding to allude to the web at that point looking in the content/reference books. Present day advancements are giving imaginative procedures. Instruction is a long lasting procedure and it should address the issues of assortment of students. ICT will actuate the showing learning in introduce framework since it is a woven mix of content, designs, workmanship, sound, liveliness and video

component. The present educational modules for ICT in Education go for discharging the objectives of the National Policy of ICT in Education and National Curriculum Framework. On account of the dynamic idea of ICT, the educational program underscoring the centre instructive intentions is bland in outline and concentrates on a wide introduction to innovations, together went for improving innovativeness and creative ability of student. For the educator, it is a start into investigating instructive potential outcomes of innovation, figuring out how to settle on right decisions of equipment, programming and ICT associations and developing to end up noticeably a basic client of ICT. " (Sharma and Kumud, 2011) Amid the previous 20 years, the utilization of PCs in the field of educator training has expanded significantly and an extensive variety of projects are presently accessible for this reason. Be that as it may, there has been next to no investigations reported about the viability of such uses. The motivation behind present investigation was consequently to learn the Effectiveness of Information and Communication Technology Enabled Instructional Programme (ICT-EIP) when contrasted with traditional strategy of teaching. The discoveries unmistakably recommended that the incorporation of ICT-EIP for pre-service teacher educators is exceptionally viable regarding their Technological, Pedagogical and Content Knowledge (TPACK), Teacher Self-Efficacy (TSE) and Teaching Effectiveness (TE). Unequivocally one might say that ICT-EIP gives more prominent chances to pre- service teacher educators to improve their TPACK, TSE and TE. It is far superior to the customary strategy for educating. The wrapping up of the investigation needs likewise to be communicated regarding their worldwide significance for instructive purposes versus the tested hypotheses of the investigation. Prime-facie, the fundamental concentration addresses the multi sensory approach of the innovative teaching process (ICT-EIP) and its effect on education for feasible advancement of every single individual in a circumstance which is considered to be a scaled down innovation based society in itself. The two overlay central factors of the investigation clearly include:

a). Teaching Strategy, specially ICT-EIP.

b). The terminal conduct, as far as Technological, Pedagogical and Content Knowledge (TPACK), Teacher Self-Efficacy (TSE), and Teaching Effectiveness (TE). The consequences of the investigation can be deciphered with regards to worldwide viewpoints of instruction expected by world associations like UNESCO. UNESCO (2016) adopts an all encompassing strategy and far reaching way to deal with advance ICT in training. Get to incorporation and quality is among the principle challenges they can address. The associations between sectoral stages for ICT in instruction concentrate on the issues through the joint work of its division: Communication, Information and Education.

      The following conclusions are drawn:

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.

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