

EFFECTIVENESS OF MULTIMEDIA PRESENTATION ON ACHIEVEMENT OF B.ED STUDENTS

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ABSTRACT

As the miniaturization of the computer takes place and the cost of its use decreases the adaptation of programmed learning to the computer has increased. CAI can take very basic or very complicated forms. Multimedia delivers information in a variety of ways, but achieves its greatest effectiveness through interaction. Multimedia in education provides a new way for teachers to encourage one of the rare and important elements of learning, curiosity. Educational Technology, sometimes termed Ed.Tech, is the study and ethical practice of facilitating e-learning, which is the learning and improving performance by creating, using and managing appropriate technological processes and resources. The term educational technology is often associated with, and encompasses, instructional theory and learning theory. Multimedia packages can help to go beyond the four walls of the classroom. Multimedia Presentation can be used to develop active and mastery learning. In this learning situation, there is active participation on the part of the learners as opposed to passive learning, listening to lectures and demonstrations. Thus Multimedia Presentation can be an important feature of self-learning.

KEYWORDS: CAI, Multimedia, Multimedia Packages, Interaction

INTRODUCTION

As the miniaturization of the computer takes place and the cost of its use decreases the adaptation of programmed learning to the computer has increased. CAI can take very basic or very complicated forms. Its basic operation is the presentation of sequenced learning materials, its presentation of branching sequences, its scoring of the students work and its return of the results to the students. CAI is expensive and requires a substantial initial investment on the part of the school. Some schools, colleges, and universities justify the investment by using the computer not only for instruction but also for administrative, finance and scheduling matters.

The biggest problem, which the schools face today, is not the availability of hardware, but rather the shortage of qualitative, validated instructional programs in all disciplines. CAI will never be the total answer to the many problems of education. It, like all instructional media, can assist in student learning only if properly integrated into the total learning process.

Like all instructional media, CAI is effective only if it is used by the teacher and student and not if it uses the teacher and student.

Communication

Communication ,especially in classroom situation, means sharing of knowledge, feeling, ideas or information in such a way that each gains a common understanding of the meaning, intent and use of the message.

It is a two-way process and can even occur without uttering words. When a teacher finds so much to teach in a limited time to a crowded class, the media provides the necessary help. Media are the carriers of messages from the transmitter to the receiver. There are so many media such as books, charts, movies, compact disks, etc. “A medium is a means to an end and not an end to itself”. No medium is perfect for learning on all occasions.

The media utilized may be good for one learning process and not so for another. A single medium used for a longer time in the same class may also diminish the interest of pupils. To overcome these difficulties the multimedia systems have come to the rescue.

When media is used for instructional purposes, it is called Instructional Media.

Multimedia’ means graphics, music, sound effects, voice, video, animation and pictures, in any combination, in the same program or presentation. These various media are the building blocks of a multimedia product or presentation, but the cornerstone is the student’s ability to interact spontaneously with the information or images by using the computer. Multimedia in education provides a new way for teachers to encourage one of the rare and important elements of learning, curiosity. Multimedia components such as, graphics, animation, sound and pictures increase the learning process through visualization. Given a pool of instructional resources, there are usually very many ways in which they must be utilized in order to produce a lesson unit. Since the beginning, textbooks could never replace the human teacher. Multimedia delivers information in a variety of ways, but achieves its greatest effectiveness through interaction. One of the reasons has been that humans tend to concentrate more and grasp while hearing than while reading.

In the classroom, different types of students study. They differ in their sociological background, economic background, intelligence level, attitude and personality, i.e., the classroom consists of the varying level of individual differences. Now, the problems in front of a teacher is that-

- He has to aim to the average students of the class.
- Due to a large number of students in the class, the strategy of teaching becomes traditional. In the country like India, it is a compulsion.

Technology in education is most simply and comfortably defined as an array of tools that might prove helpful in advancing student learning and may be measured in how and why individuals behave. The educational technology relies on a broad definition of the word “technology”. Technology can refer to material objects of use to humanity, such as machines or hardware, but it can also encompass broader themes, including systems, methods of organization, and techniques.

According to UNESCO, integrating technology into education can help to bring quality education to everyone, everywhere and at any time- a key goal of the education for all initiatives. The citizens of the future must be equipped with sufficient knowledge to keep up with the technological advances and the demands of the 21st century. Again, UNESCO

also believes that recognizing innovative ICT in education practices can encourage and enhance even more educational innovations.

The CAI: In CAI, the computer interacts directly with the learners while presenting lessons. It delivers instruction directly to students and allows them to interact with the computer through the lessons programmed in the system. The concept of using computers to assist instruction in teaching students about a wide variety of topics is referred to as Computer-Assisted Instruction (CAI). Earlier educationalists used computers only for printing pre-set questions, accepting multiple-choice answers, and judging answers for correctness.

The programmed logic for an Automatic Training Operations (PLATO) system is able to teach 150 subjects ranging from physics to zoology and delivers instructional materials in the form of texts, drawing and animated graphics. Plato is probably the best-known CAI project in the world and has been shown to be effective and economical. The CAI system typically involves instruction materials stored within the computer system in the form of programmes, which are carefully structured to teach specific lessons.

Research shows (Meinster, Barry 1990; Di Muzio, Meri 1990; Niami, Linda Louise 1990) that the implementation of computers at gross root levels by teachers in schools involves various types of usage like tutorials, word processing, drill and practice, simulations, on-line database information, presentation and record keeping.

The most exciting innovation, however, in the field of educational technology is Computer Assisted Instruction or CAI. It is the natural outgrowth of the application of the principle of Programmed Instruction. It is highly individualized. CAI can facilitate various instructional modes. CAI covers almost the whole educational spectrums of its prevalent applications like, Stimulation, Drill and Practice, Tutorial, Problem Solving and Games.

No doubt, the computer-assisted instruction is revolutionizing every aspect of teaching and learning. By using the CAI system the learners benefited through

- Personalised instruction
- Short learning sessions
- Adjustable pace of learning
- Unlimited hours of instruction
- Timely feedback and assessment

An appropriate educational technology, in the hands of a competent teacher, can ensure a better teaching-learning process. When pupils learn through different senses their understanding becomes smoother and they become more inquisitive. In a formal education setting, the teacher's use of audio-visual aids plays a vital role in conveying scientific knowledge.

Further, the involvement of teachers in the process of production reduces the dependency of teachers on technology experts who are not in general academicians. The Study of the development of the Multimedia Presentation and finding its effectiveness is of great importance. As the use of computer education is increasing, the tendency towards the use of CAI is also increasing.

Rationale of the Study

Realising the importance of CAI and its successful use in the field of computer education, the idea evolved to develop a CAI for the teacher education program.

Another important factor in undertaking this work was that B.Ed. students are a heterogeneous group with the varying academic background. As a matter of fact, all the efforts on behalf of the teacher cannot ensure 100% communication due to heterogeneity and individual difference. The development of the package would reduce the problem. The use of this package will help the students who failed to attend the classes or missed out important classes. The students who are exposed to the package would be expected to have a better understanding and clear concept in general. Some teachers may go even further and make efficient use of computers as teaching aids during their lesson. In short, such teachers will be positively disposed to the use of CAI packages in teaching and will encourage their own students to learn more about computers for their own good and thereby enhance the efficiency of the whole educational system.

RESEARCH QUESTION

The main point of the study was to develop a CAI package and find its effectiveness. The following were the main point of the study, which the study attempted to answer-

- What is the effect of CAI in the achievement of the learner?

Operational Definition of the Terms

The important terms and variables used in the study are properly defined below:

- **Effectiveness:** Reasonable change in achievement through the module
- **Multimedia Presentation:** The combination of various techniques depends on instructional objectives. Multimedia includes sound-slide combination, modules, etc.
- **Achievement:** Is something which someone has succeeded in doing, especially after a lot of effort.
- **B.Ed. Students:** The students studying in One-year B.Ed. Program in Faculty of Education, Kamaccha, B.H.U., Varanasi

OBJECTIVES OF THE PRESENT STUDY

On the basis of the rationale, the objectives of the study were -

- To study the effectiveness of Multimedia Presentation in the form of CAI on the achievement of the B.Ed. students.
- To develop a CAI package on the chapter "Learning".
- To compare the effectiveness of Multimedia Presentation in the form of CAI among male and female B.Ed. Students.
- To compare the effectiveness of Multimedia Presentation in the form of CAI among Science/Mathematics and Humanities/Language Stream B.Ed. Students.

METHOD OF THE STUDY

The present study aimed at developing a Multimedia Presentation on Learning and testing its effectiveness as compared to the conventional method. To achieve this aim, the best approach is the experimental comparison of the two methods of the learning. However, in behavioral sciences, it is often not possible to conduct a true experiment.

Yet, there are an experimental design which is based on the theory of randomization that claims experimental validity, if the random assignment of subjects to the experimental and the control group is done and the treatments are given to those groups randomly.

In this study, randomly assigned assignment of the subjects into 2 groups was done to collect the relevant data for the verification of the hypothesis.

Population and Sample Selection

This selection demarcates the population for the study and describes the process of sample selection.

Population: The population for the purpose of this study was defined as all the B.Ed. Students of B.H.U. the population in general.

Sample: A random sample is selected from the population. This type of sample is the best representative of the population whose characteristics are unknown. The random sample consisted of B.Ed. students of Faculty of Education, B.H.U.

Development of the Package:- Development of the Multimedia Presentation is a systematic method and needs step by step movement towards finally. These steps are nothing but decision points regarding the logic and also the control point of the design without which it is quite impossible to complete the developmental work. It is believed that the multimedia presentation provides a congenial environment to the learners to learn concepts. It creates interest.

Features of the Package:- It has been made concise and to the point. This package is designed for the students of B.Ed. The major features of this package are-

- It is a readymade reference, which the students can use for quick consultation.
- User has the freedom to access any part of the package according to their choice or shut it down.
- Information is given in pointwise hierarchical ways to make it easy to comprehend.
- Proved to be time-saving as the student may start with any part without following any rigid schedule as in the case with conventional learning.
- Provision for evaluation at the end.
- Reinforcement by sending to next frame in case of right response or by intimating in case of wrong response
- Lastly, the scope for improvement in the package is endless.

TOOL USED IN THE STUDY

The following tool was used for collection of data:-

The Multimedia Presentation for B.Ed. Students based on Chapter “Learning” in Psychology.

Content

- What is learning?
- 2.Learning Theories
- 3.Attention

Types of Slides: Small slides, Logically arranged, Written in Simple English Language. The presentation includes interesting examples and colorful pictures. A total number of slides is 54.

Construction of the Achievement Test: The investigator chose the topic Learning and Attention from the syllabus of Banaras Hindu University for the B.Ed. Course and constructed the achievement test. 28 items were chosen for the achievement test.

Questions asked: Multiple choice questions with four options have been included based on the presentation. The Questions varies from one slide to another. The questions are based on the content of the respective slides.

Description of the Tool: This test was developed by the investigator to determine and the compare achievement of students of control and experimental groups. The draft of Achievement test includes 28 multiple choice items covering Chapter “Learning”.

Administration of the Tool: Care and caution were exercised in making the testing situation very effectively. The purpose of the tool and also the instruction for answering were demonstrated in the class and student’s doubts were clarified before administering the tool.

Method of Scoring: The scoring of responses was done manually on an answer sheet of the questionnaire to the students individually. Each correct response was given one mark while wrong responses were treated as zero.

Time allotment for the Test: The total time allotted for completing the Achievement Test consisting the 28 items was 30 minutes.

Treatment: The proposed treatment of teaching through Conventional Method and Multimedia Presentation was given to the Control Group and Experimental Group students in the month of January after their semester break. The Control Group was taught for 10 days by Conventional Method of Teaching, 5 days in the Morning from 10:00 A.M. to 11:00 A.M. and 5 days in the Afternoon from 1:00 P.M. to 2:00 P.M. and the Experimental Group was also taught for 10 days by Multimedia Presentation, 5 days in the Afternoon from 1:00 P.M. to 2:00 P.M. and 5 days in the Morning from 10:00 A.M. to 11:00 A.M.

Focus of the Treatment: The main objective of the study was to examine the effect of Multimedia Presentation. As it was an experimental study and the purpose was to examine the relative effectiveness of Multimedia Presentation it was necessary to adopt an experimental design for conducting the study. The design which was found to be most useful for

the purpose of the study was parallel group design. From the total strength of nearly 325 students studying in 5 sections, 2 sections were randomly selected i.e., Section B and C, a sample of only 60 students was taken.

The 60 students were equally divided into two groups based on their UET Index Entrance Test Marks for B.Ed. Course; the students scoring average marks were targeted for the study, with each 30 and were named as Control and the Experimental Group. The Control Group and the Experimental Group were compared in all aspects. The Control Group was taken as the reference, which was used to compare the Experimental Group. The control group received no treatment while the Experimental Group received the treatment.

Structure of the Treatment

Group Provided with Multimedia Presentation: Experimental Group students were taught by the Multimedia Presentation prepared by the researcher on the selected topic of Chapter Learning.

Control Group: Not provided with Multimedia Presentation.

Statistical Treatment of the Data: The inferential statistics used here include Mann-Whitney U test because of the small sample size. Fulfilling the criteria of a non- parametric test.

A standardized achievement test was then administered on both groups. The results of the experiment have been reported in details in chapter-4. The summary of major findings of the study follows.

FINDINGS

Finding Related to Achievement between Control and Experimental Group

The use of Multimedia Presentation in the form of CAI, was effective and a significant difference between the achievement of Experimental Group and the Control Group was found indicating the effectiveness of Multimedia Presentation. This shows that Multimedia Presentation brought changes in the achievement of the students at the B.Ed. level. Hence, it is evident that the experimental group achieved more and proved its effectiveness by adopting the treatment. It is concluded that the Multimedia Presentation at the B.Ed. the level is effective as compared to that of the traditional method.

Finding Related to Sex

The achievement of Boys and Girls of the Experimental Group was compared to see whether any sex-related differences existed. No significant differences were found between the groups. This shows that male and female are somewhat equal in achievement; sex plays no role in enhancing the achievement when pupils learn through Multimedia presentations in the form of CAI.

Finding Related to Combination of Subjects

The achievement of Science/Mathematics and Humanities/Language Stream of the Experimental Group of B.Ed. Students had no significant effect on their achievement on the basis of Multimedia Presentation in the form of CAI. Therefore, the null hypothesis is being accepted. It is concluded that subject combination of B.Ed. students had no effect on their achievement.

Learning is an individual, personal matter. It can most effectively be accomplished, if the learner's own unique cognitive style is recognized and accommodated. CAI is a self-learning material and can be regarded as a form of teaching, which takes place on the individual basis. It helps learner to make the decision about what to study, how much to study and involves the learner in evaluating the effectiveness of their efforts and progress. As the result of the analysis showed that the hypotheses-“There is no significant difference in the achievement of B.Ed. Students using Multimedia Presentation and not using Multimedia Presentation” was not accepted.

Hence, the research hypotheses are accepted and concluded that there was a significant difference in the achievement of the students at 0.05 level of significance. So, it can be concluded that CAI may be more effective in terms of better educational achievement. This also supported by theories of learning in general and findings of the other researcher. In fact, through CAI either the learner learns or he/she doesn't learn at all.

During the whole course of analysis, an important factor must be kept in mind that the CAI or such type of self-learning material provides autonomy to plan the learning activity individually. Since, it provides autonomy and independence to the learners to proceed according to their own time and space and provides freedom of responsibility for regulating their own learning. It is but natural that CAI is more effective. The whole interpretation is also supported by other researchers which revealed that CAI was found effective for teaching different subjects.

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