

IMPACT OF CAI ON ACHIEVEMENT IN ENGLISH GRAMMAR AT HIGHER SECONDARY LEVEL

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Educational Technology

In recent years, there has been a rapid advancement of technology in all fronts. Hence, it is not surprising to find that educationists also are now concerned with the use of technology at all levels. Educational Technology is relatively a new field emerging now where the scientific and Psychological knowledge is being put to use in the teaching-learning process. In the words of Dighton, Educational Technology is the systematic application of scientific knowledge about teaching and learning and conditions of learning to improve the efficiency of teaching and training.

Educational Technology is the process of utilizing all available knowledge regarding human learning and communication for improving teaching and learning using human and non-human resources.

“Educational technology is both technology in education and technology of education”.

“Educational technology is a systematic and scientific way of developing tools and techniques to improve the process of teaching learning.”

Michel J. Apter said, “Educational technology can be interpreted in a rather narrow way to mean little more than the use of sophisticated hardware in teaching or in abroad but trivial way to mean the use of any new educational technique.

Collier stated that Educational Technology is concerned with the design and evaluation of curriculum and learning experiences and with the problem of implementing and renovating them. Essentially it is a rational problem solving approach to education, a way of thinking sceptically and systematically about learning and teaching.

Educational Technology is an applied study which aims at maximizing learning by making use of scientific and technological method and concepts developed in other social service. Such as psychology, sociology, communication, linguistics and other. According to the Brynnes Jones report in UK. Educational Technology is defined as the development, application and evaluation of systems, techniques and aids to improve the process of human learning.

According to pillay, Educational Technology can be considered as the systematic use of scientific knowledge to plan, to realize and to evaluate effective teaching and learning process in informal, formal or non-formal situations.

Bannerji defined, “Educational technology insists the frame work in which the child is being prepared for the emerging era is very important. New methods of instruction will produce citizens capable of accepting his challenge of the present and the future.

“Educational technology is the application of scientific knowledge about learning and conditions learning to improve the effectiveness and efficiency of teaching and learning.”

Computer Assisted Instruction

The most exciting innovation in the educational technology is Computer Assisted Instruction (CAI). A computer is programmed with linear or branching programmes. It acts like a super teaching machine catering to the needs of a number of students at the same time. The characteristic aspect of the CAI is its capacity to initiate flexible interactions with the student which is not possible in the teaching machine. There are a number of ways in which this can be brought about. The computer is able to record and store all the responses of the students. It can use the information in deciding what information to give the student next. It can branch not just in terms of a whole series of previous answers. It can also record the time taken to answer a question and the degree of correctness of the students response. It uses the information in planning to determine which branch to take.

Computer-assisted instruction is therefore not merely a sophisticated type of programmed instruction but a different kind of instruction altogether. No doubt, it uses programmed instruction but it also uses electronic data processing, data communication theory, systems theory and learning theory.

Basically, computer – assisted instruction is described in terms of its :

- (1) Hard ware (The machine)
- (2) Soft ware (The programme)
- (3) Communication links (The devices which allow learners to use the hardware and software)
- (4) Curriculum (Teaching material stored in a computer)

Significance of the Study

Education has been undergoing a slow evolution from a teacher-centered and teacher controlled system to pupil-cantered system. This demands changes in the instructional process and in the materials used in making the process more effective. However, the teaching-learning process in India, is still dominated by the teacher’s activities. That is to say that the teacher is active and the students most of the time are passive. This has led to dissatisfaction among the teachers and students. What is essential is a learner-centered use of a variety of media and methods in combinations which are relevant to the specific educational problems of developing countries and appropriate to the nature of media and methods (Prasad and

‘Information explosion’ and ‘population explosion’ are the two factors that are trying to change the web of life. They mean large quantum of knowledge to be imparted to a large population which in turn leads to the spiraling problem of opening more schools and employing more teachers. Under these circumstances what is needed is an ‘education explosion’. Technology or automation is the only solution to solve all these problems. Programmed Instruction and Computer-Assisted-Instruction are innovative steps in this direction towards automation and individualization of instruction. These methods utilizes the psychological principles of human learning and motivation in the classroom situations. The number of

Computer Assisted materials and Computer-Assisted-Instructional software developed in India is very few as compared to that in the Western countries.

Objectives of the Study

1. To study the effectiveness of Computer Assisted learning Materials in teaching English Grammar.
2. To find out the extent of Achievement in English Grammar of the students of standard XI.
3. To Construct a CAI Module for teaching of English Grammar for students of XII standard.

Hypotheses

1. There will be no significant difference in the mean scores of Achievement in English Grammar in the pre-test between control group and the experimental group.
2. There will be no significant difference in the mean scores of in Achievement in English Grammar between the pre-test and Post-test for the control group.
3. There will be no significant difference in the mean scores of Achievement in English Grammar between the pre-test and Post-test for the experimental group
4. There will be no significant difference in the mean scores in Achievement in English Grammar in the Post-test between the control group and the experimental group.
5. Gap closures in experimental groups will be greater than that of the control group.

Null Hypothesis (H_0)

There will be no significant difference between the experimental group and the control group in the pre-test performance in Achievement in English Grammar.

Table 1 Pre-Test Performance (Control Group and Experimental Group)

Group	N	Mean	SD	"t" value	Significance
Control	30	18.50	8.76	1.24	NS
Experimental	30	15.83	7.96.		

df=98

$t_{(0.05)} = 1.96$

$t_{(0.01)} = 2.58$

Hypothesis 2

Null Hypothesis (H_0)

There will be no significant difference between pre-test and post test performance of the control group in Achievement in English Grammar.

Table 2 Pre-Test / Post – Test Performance for Control Group

Type	N	Mean	SD	"t" value	Significance
Pre	30	18.50	8.76	0.96	NS
Post	30	20.83	10.00		

df= 98

$t_{(0.05)} = 1.96$

$t_{(0.01)} = 2.58$

Hypothesis 3

Research Hypothesis (H_R)

Null Hypothesis (H_0)

There will be no significant difference between pre-test and post test performance of the experimental group in Achievement in English Grammar.

Table 3 Pre-Test / Post – Test Performance for Experimental Group

Type	N	Mean	SD	"t" value	Significance
Pre	30	15.83	7.96	5.29	S
Post	30	26.83	8.16		

df=80 $t_{(0.05)} = 1.96$ $t_{(0.01)} = 2.58$

Hypothesis 4**Research Hypothesis (H_R)****Null Hypothesis (H_0)**

There will be no significant difference between experimental group and control group in the post-test performance in Achievement in English Grammar.

Table 4 Post-Test Performance Control Group and Experimental Group

Group	N	Mean	SD	"t" value	Significance
Control	30	20.83	8.76	2.75	S
Experimental	30	26.83	8.10		

df=78 $t_{(0.05)} = 1.96$ $t_{(0.01)} = 2.58$

The table reveals the following facts.

Gap closure is the difference between the mean scores obtained by the group and the maximum score, called perfect score. The gap closing score is the percentage up to which the gap towards perfection gets closed for a group. Percent gap closed is defined by a variable which might be termed percentage of ignorance of gap closed and stated as percentage

Table 5 Gap Closure for Control Group and Experimental Group

S.No	Group	Gap Closure %
1	Control	10.82
2	Experimental	45.51

Hypothesis 5**Null Hypothesis (H_R)**

There will not be significant difference between the experimental and the control groups in gap closures (unit wise)

Based on the analysis of the given data the null hypothesis is rejected and the research hypothesis is accepted.

Interpretation

This is an experimental study with pretest post test equivalent group design. Entry behaviour test was conducted to separate control and experimental group to assess the prerequisite knowledge Both the groups are identical and this indicates the nature of identicalness in tune with the pre-test mean scores of both groups. All the pre-test 't' value for control and experimental reveal no significant difference among control and experimental groups. This establishes their identical nature and no significant achievement in their pre-requisite knowledge.

The means of pre-test scores and post-test scores of control as well as experimental groups differ significantly (0.01 level) with the post test mean being greater than the pretest mean. The implication of that is that the level of acquiring of the basic skills in English Grammar has increased due to traditional method in control group and ***Programmed Learning Method*** in experimental group.

The post test scores of control and experimental group differ significantly. The means score of experimental group is greater than of control group.

Developing of Computer assisted instructions.

There units is English Grammar for standard XII were considered for developing Computer assisted instruction with the objectives of developing knowledge of grammar so as to facilitate students in acquiring writing skill.

Sampling design

The sample consisted 10 students for the pilot study and 60 for the final study. The sample was constituted by pupil studying in Std XII Control group and experimental group were formed. The two groups were first matched before the treatment.

Instrumentation

For the purpose of evaluating pupil's performance in this study the following tools were developed and validated.

1. Computer assisted instruction modules
2. Achievement Test in grammar

The content and the items of the above tools were subject to validation. Experts established the content validity. Item validity was made employing discriminative and difficulty indices. Reliability of the test was established by rational equivalent method.

Findings

There was no significant difference in the performance of the control group and experiment group in the pre test. This confirms that the control group and experimental group were matched.

There was significant difference in the post test performance of both the control as well as the experimental group. This is due to the effectiveness of the reinforcement by way of conducting the tests and exposure to the students the question pattern and awakening of awareness.

There was significant difference between the performance of the control group and the experimental group in the post test. This is in evidence of the effectiveness of Computer assisted instructions.

The gap closure for the experimental group was greater than that of the control group. This further collaborates the effectiveness of CAI Module in teaching and learning.

It could be seen that the CAIM was more effective than the traditional method in teaching of English Grammar at Higher secondary level.