

INFLUENCE OF CAI ON TEACHING GRAMMAR

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Definitions of “Language”

1. According to Sapir (1921), “Language is purely human and non-instinctive method of communicating ideas, emotions and desires by means of voluntarily produced symbols”.
2. According to Trager (1949), “a language is a system of arbitrary vocal symbols by means of which the members of a society interact in terms of their total culture.”
3. According to Chomsky (1957), a language is “a set (finite or infinite) of sentences, each finite in length and constructed out of a finite set of elements”.
4. According to Hall (1964), Language is the “institution whereby humans communicate and interact with each other by means of habitually used oral-auditory arbitrary symbols”.
5. According to Webster’s Dictionary, language is “a systematic means of communicating ideas or feeling by the use of conventionalized signs, sounds, gestures or marks having understood meanings.

In short, language refers to “all forms of human behaviour” “what is life is what is language”.

Functions and Purposes of Language

Language does several functions and is used for multiple purposes.

1. Communicative function
2. Non-communicative Function
 - Emotional expression
 - Social-interaction
 - The instrument of thought.

The Ground Work of Grammar

Sweet has defined: Grammar as “the practical analysis of a language, its anatomy”. It deals with the function of words in a sentence. It explains the structural details of a sentence. It is concerned with the general rules of syntax or sentence construction, i.e., the order of words, agreement of the subject and the verb, sequence of tenses, etc. These rules throw light on the language structures and facilitate correct language learning.

Thompson and Wyatt, “Grammar presents the facts of language, arranged under certain categories and deals only with what can be brought under general laws and stated

in the form of general rules.”

West, “Grammar is not a code of rules; it is like etiquette and table manners, a statement of convention; it summarizes what is done by cultured people and like etiquette, it is in a state of constant change.”

W.N. Francies, “Grammar has three different meanings. The first meaning of grammar - (1) - is the set of formal patterns in which the words of a language are arranged in order to convey larger meanings. The second meaning of grammar - (2) is the branch of linguistic science which is concerned with the description, analysis and formalization of formal language patterns. (3) The third meaning of Grammar is the linguistic etiquette”.

Educational Technology

Educational Technology is like application of scientific knowledge about learning and the conditions of learning to improve the effectiveness and efficiency of teaching and training.

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 need 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. 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.

Significance of the Study

Education has been undergoing a slow evolution from a teacher-centered and teacher controlled system to pupil-centered 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 Vijay Kumari (1997).

Objectives of the Study

1. To study the effectiveness of Computer Assisted Instruction in teaching English.
2. To find out the extent of Achievement in English of the students of standard IX.

Definition of Key Terms**Computer Assisted Instruction**

In this study, the investigator has used Computer Assisted Modules for reinforcing the content related to cognitive skills in English which the students have acquired through the Conventional Teaching Method. This method of reinforcement through Computer Assisted Method has been employed as a reinforcement strategy in the study.

Achievement in English

The scores obtained by the students in Achievement Test.

Effectiveness

The word effectiveness is meant to show the significant difference in the mean scores in achievement in English between the pre-test and post-test.

Scope of the Study

The scope of the study is concerned with the following area

- Preparation of CAI module
- Preparation of Achievement test in English Grammar.
- Performing an experiment to find the effectiveness of CAI module upon teaching English for students of IX standard.

Research Questions

The investigation was carried out with a view to finding out the answers to the following questions

1. What is the level of Achievement in English Grammar of the students of IX standard?
2. How far was the CAI Packages Effective in teaching of English Grammar?

Hypotheses

1. There will be no significant difference in the mean scores for achievement in English Grammar in the pre-test between control group and experimental group.
2. There will be no significant difference in the mean scores 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 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 for the post-test between control group and experimental group.
5. Gap closures in experimental group will be greater than those in control group.

Population and Sample for the Study

The sample is random sampling. The students were selected randomly for the sample. The following table furnishes the details

Table 1: Distribution of the Final Sample in the Control and Experimental Groups of the Study

Name of the School	Control group	Experimental group	Total
Govt. Hr. Sec. School, Vellalur	40	40	80
Total	40	40	80

Experimental Design

The major objective of the present investigation is to study and compare the CAI package as an effective reinforcement strategy in teaching-learning process and its effect on achievement in English Grammar among the students of IX standard and this demands to employ one of the experimental designs.

Method of Experimental Study

The investigator had employed three study phases which include two test phases for the collection of data and manipulation of experimental variables (i.e., content and method) of the study. The data collection was spread over for a period of two months from July - August 2009.

20 teaching sessions (45 minutes each) were required for this entire study in each session of the school. Students from Vellalur Govt. Higher Secondary School, Madurai were involved in the study.

Phase-1 Identification and Development of CAI Packages and Tools

In this phase, the investigator developed Computer Assisted Instructional software. The construction of CAI material and Achievement test come under this phase, Identification of students from selected schools for establishing Control group and experimental group. Matching the control group and experimental group were also finalized at the stage.

Phase-2 Experimental Phase-1

In the second phase of the study, the investigator conducted the pre-test on the sample selected. The investigator taught the unit 'English Grammar' to all the students by Conventional Method of Teaching. The topic was covered within ten days by taking one contact session of 45 minutes per day.

After completing these units, a pre-test was administered to assess the achievement of cognitive skills in 'English Grammar'.

Phase-3 Experimental Phase-2

Students of Govt. Hr. Sec. School, Vellalur formed the control group and experimental group. The experimental group was called as CAI Packages group. The

students of CAI Packages group were given reinforcement through Computer Assisted materials for duration of twenty teaching periods. The students of CAI Packages group were sent to the Computer Lab and an introductory talk was given to them regarding the operation of computer keyboard and the study of packages on English Grammar. Fortunately, a few students of the CAI Packages group had previous experience in using the computer keyboard. The students of the control group were not given any type of reinforcement on the content on English Grammar through CAI.

After giving reinforcement to the experimental groups through Programme Learning Material and CAI Packages, a post-test was administered for both experimental and control groups.

Variables Controlled during the Experimental Phases

- The qualified teacher taught the units to the whole group of students through Conventional Teaching Method. Thus 'teacher variable' was controlled.
- The CAI packages were developed with the help of the same content or lesson plan for teaching by Conventional Teaching Method. The PLM and CAI Packages were employed as a reinforcement strategy to the students in the experimental groups selected for the study. Thus, the treatment variables were controlled.
- The investigator had requested the English Grammar teachers of the participating schools not to employ CAI till the experiment was over.

Analysis and Interpretation

Hypothesis 1

Null Hypothesis (H_0)

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

Table 1: Pre-Test Performance Control Group and Experimental Group

Unit Test	Control Group		Experimental Group		't' Value	Significance
	Mean	SD	Mean	SD		
1	10.30	5.92	9.98	5.92	0.26	NS
2	10.68	5.92	10.23	6.12	0.33	NS
3	10.80	6.12	10.55	6.32	0.18	NS
4	11.40	6.12	10.83	6.32	0.41	NS

There is no significant difference between pre-test performance for control group and experimental group.

Hypothesis 2

Null Hypothesis (H_0)

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

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

Unit Test	Pre Test - Control		Post Test - Control		't' Value	Significance
	Mean	SD	Mean	SD		
1	10.30	5.92	10.60	5.70	0.23	NS
2	10.68	5.92	11.50	5.92	0.62	NS
3	10.80	6.12	11.20	6.12	0.29	NS
4	11.40	6.12	11.70	6.32	0.22	NS

There is no significant difference between pre-test and post test performance for control group in all the unit tests.

Hypothesis 3

Null Hypothesis (H₀)

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

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

Unit Test	Pre test - Experimental		Post test - Experimental		't' Value	Significance
	Mean	SD	Mean	SD		
1	9.98	5.92	15.00	6.12	3.72	S
2	10.23	6.12	15.50	6.32	3.79	S
3	10.55	5.92	15.60	6.90	3.51	S
4	10.83	6.32	15.70	7.07	3.27	S

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

There is significant difference between pre-test and post test performance of experimental group in all the unit tests.

Hypothesis 4

Null Hypothesis (H₀)

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

Unit Test	Control Group		Experimental Group		't' Value	Significance
	Mean	SD	Mean	SD		
1	10.60	5.70	15.00	6.12	3.33	S
2	11.50	5.92	15.50	6.32	2.96	S
3	11.20	6.12	15.60	6.90	2.95	S
4	11.70	6.32	15.70	7.07	2.67	S

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

There is significant difference between experimental group and control group in the post-test performance in all the unit tests.

Gap Closure

Gap closure is the difference between the mean score 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 gap closed and stated as percentage.

Table 5: Gap Closure for Control Group and Experimental Group (Global)

S.No	Group	Gap Closure
1	Control group	4.81
2	Experimental group	52.62

Percentage of the Gap closure for the experimental group is 52.62 where as there is a gain of 4.81 for the control group. The percentage of Gap closure for control group is negligible. The increase in percentage of Gap closure for experimental group is a proof for the effectiveness of CAI Packages.

Hypothesis 5

Null Hypothesis (H_0)

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

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

Interpretation

This is an experimental study with pre test post test equivalent group design. The groups were matched. The control group and experimental group were 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 group 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 pre test 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 CAI PACKAGES in experimental group.

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

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 exposing 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 CAI Packages.
- The gap closure for the experimental group was greater than that of the control group. This further collaborates the effectiveness of CAI Package.
- It could be seen that the SLP was more effective than the traditional method in teaching of English Grammar at Higher secondary level.

Limitations of the Study

The limitations of the study are as follows

1. This study was limited to the students studying in standard IX
2. The sample is not random.
3. The experimental was limited to a period of a few months.

Suggestion for Further Research

1. The experiment may be conducted at different level
2. The experiment may be performed to develop the other skills of the English Grammar subject
3. Comparative study may be undertaken in relation to rural with urban, Low S_{ES} with High S_{ES} , slow learners with fast learners studying in different types of schools.
4. More instructional material for employing programmed learning method may be given.
5. Exposure to the teacher in developing SLP may be given.

Conclusion

It could be observed through experimentation that CAI Package was an advantageous point over the traditional method in teaching English Grammar effectively CAI Package may be developed for providing appropriate knowledge for the rest of the units. The students evinced a lot of interest in learning English Grammar through CAI Package. The students who had their personal computer system showed keen interest in learning English Grammar. They found the materials quite useful with respect to objective questions and concepts. CAI Packages was of great use. Those students who did not have mastery in operating computer were assisted by the students who had a thorough knowledge of operating the system. This indirectly helped peer group learning also. The students who could operate the system felt elated and very proud. This, in turn motivated

the students to learn English Grammar. Concerning the mathematical aspects students' knowledge could not be improved overnight.

Most of the students wanted to have CAI Packages covering all the units prescribed for the IX standard in English Grammar. Owing to paucity of time the investigator could not comply with the request of the students.

The investigator suggested the students that they should prepare CAI Package by themselves.

When diagrams with labels were projected on the screen it served the purpose of reinforcement. The diagram was explained. The investigator concentrated more or less on the concepts for presenting the materials.