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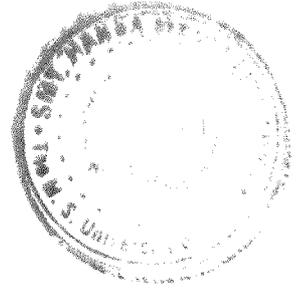
**DEVELOPMENT AND IMPLEMENTATION OF
CAI TO TEACH ENGLISH GRAMMAR TO
STANDARD VIII STUDENTS IN
DIFFERENT MODES**

*An Abstract of the Thesis Submitted to
The Maharaja Sayajirao University of Baroda
for the Degree of
Doctor of Philosophy
in
Education*

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AN ABSTRACT

INTRODUCTION

English is one of the most useful languages. It is spoken by maximum number of people in the world for which it is called as the 'Lingua Franca'. It has been used almost by all the nations of the world as a communicative language as it has made the communication easier among most of the countries of the world. It plays a vital role to have the better view of the world and to have better access of the latest source of knowledge and information. In another way it can be called as a living stream of knowledge that plays a vital role in producing changes and accepting new trends in the society. It imparts new knowledge, skills and also provides formal system of living, which is found in most of the advanced countries of the world. The commercial weightage, the technical importance and the cultural content of English language also explain the fact of its worldwide acceptance as the medium of intellectual exchange. It is quite indispensable for the students of Politics, Economics, Science, Engineering, Medical and Technology.

Regarding the importance of different languages, the Government of India framed language policy in consideration of the recommendation of different committees and commissions. Both the National Integration Commission (1962) and the Indian Education Commission (1964-66) recommended the three-language formula where English had a major position. The Indian Education Commission also suggested that learning of English should be compulsory as a second or third language for the duration of six years and three years in the non-Hindi speaking areas and Hindi speaking areas respectively.

One can easily understand the importance of English language with its significant use at present time and from the futuristic view of different commissions and committees about this language. Hence the knowledge of English language is very vital for the development of self as well as for the development of the nation. Because of these reasons teaching of English is always encouraged in Indian schools.

In any language learning, grammar plays an important role. As all the skills of language - Listening, Speaking, Reading and Writing, are acquired easily with the help of grammar. Grammar not only familiarizes students with different syntax and usages of words in different sentences but also enriches the speaking ability and helps a person to have a different impression. The importance of teaching grammar cannot be denied which is taught in schools with different methods and techniques. Sometimes to teach grammar, different teaching aids like, charts, pictures, filmstrips, flash cards, television, tape- recorder, etc. are used. In this modern era of Information and Communication Technology (ICT) English grammar can be taught effectively with the help of computers and in that Computer Assisted Instruction or Computer Aided Instruction (CAI) is very useful as it lessens the burden of the teacher and makes teaching and learning interesting. It also helps students to learn any topic at their own pace and at their own convenience. It also increases the enthusiasm of the students as well as motivates them to learn. Even the learning, which takes place with CAI, is interactive, accurate and untiring. Students of different age group can learn different things with the help of novel activities through CAI. The most beneficial or inspiring aspect of CAI is that it provides the mixture of wide range of visual, graphics and pictures in a multimedia environment to make the teaching-learning more interesting. The present study is an attempt in this direction to develop a CAI to teach English grammar in different modes.

Effectiveness of CAI may depend upon its mode of presentation in comparison to traditional method as well as among themselves and just to find out the option to traditional methods with better result if any. These different modes may comprise of the drill, discussion, repetition etc aspects. Now further the discussion is made on the different facets of English language and CAI which is given as follow.

IMPLICATION OF THE REVIEW OF RELATED LITERATURE FOR THE PRESENT STUDY

The researcher has reviewed 28 studies related to the present study. The reviewed studies were related to the topics like programme teaching, curriculum of English, the resources available in schools for teaching English, course design in English for communicative approach, difficulties in teaching or learning of English and the

remediation. Some of them were related to study the effectiveness of the different methods to teach different subjects, as well as some of them were based on CAI, PLM, CALM, CALL, and Play way method etc. The researcher also reviewed that the studies conducted in foreign countries were related to the integration of technology either at school level or university level.

All the experimental studies reviewed were found to be following quasi-experimental design. As no study was found related to the teaching of English Grammar to English medium students, researcher considered the present study to teach English Grammar to English medium students with the help of CAI in different modes following some aspects of communicative approach as well as structural approach.

RESEARCH QUESTIONS

The researcher has come across the similar studies during the review of the related studies. But the studies with these three modes have not been done before, which was found from the review and to find out the answer of the following questions the researcher has taken the present study. The present study may find answers of some of these questions.

- Whether CAI can be used for effective teaching of English Grammar?
- Whether students studying English grammar through CAI can perform similarly to the students studying the same through traditional method?
- Whether the CAI can be used with alternative modes like only CAI, CAI with repetition and CAI with discussion?
- Whether the achievement of students studying English grammar through CAI in different modes would differ?

RATIONALE OF THE STUDY

English is considered as one of the most important languages as it opens all the vistas of the world. It is a library language for getting world information as many sources of information are available in this language. Most of the dealings at national and

international level are done with the medium of this language. It is also a Web language. The impact of English is so much at present that teaching-learning of English plays an important role in school and the society at large from futuristic perspective. For the development the efficiency in language depends on the process of teaching-learning at school level. So, with the passing of the time teaching of language undergoes changes with demand and need of the time. Even language teaching and learning becomes a difficult job if the goal of developing language efficiency among the students is not achieved well. Teaching English language, covering the syllabus and fulfilling the taste of the students, may be difficult. The teacher should yield to change his/her way of teaching. Though old approach may be well known, very thorough and effective, one has to give place to new methods to fulfill the need. Methods followed for decades cannot be easily abandoned but feeling the reality, change in teaching method is indispensable to develop English language ability of the students of India in general and Gujarat in particular as there are greater opportunity of job and further progress due to the availability of scopes. The base of language efficiency is on grammar of that particular language without which language learning cannot be possible. And English grammar provides a sound base to the English language learning. Considering the importance of English language the researcher took the present study to contribute to enhance the teaching-learning of English grammar. Even the teaching of grammar involves different methods and approaches for better result and it also involves different use of teaching aids as well as the techniques. In technological driven era, advancement in technology has made it quite possible to take advantage of many modern facilities in different facets of communication. Because of that, audio-visual devices need to be used frequently and effectively in language classes. However, since both human nature and the language teaching-learning process are dynamic phenomena, the need for the newest techniques and technological devices is felt. As computer is a versatile device with many advantages of storing huge amount of information and processing them as per one's wish and need, it can be utilized as a complementary device to other audio visual aids in teaching language. During the computer-based language activities, learners can observe several structural changes occurring to words, sounds, rules and meanings of the language they are learning. CAI is one of the forms of Educational Technology using the potential of

computers and following the pedagogy of teaching and learning, which has great impact in the field of education. With its unique features like, drill, simulation, animation, tutorial and gaming, it makes teaching and learning more interesting and encouraging for the students.

At present day by day classroom is becoming overcrowded. The overcrowdedness of the class has changed the teacher and pupil ratio. It has made the condition of classroom worse due to teachers' difficulty to give proper attention to the students. This overcrowded classroom can be dealt with the help of CAI. CAI can be more advantageous to both students and teachers. It allows the teacher to give attention to individual students being a facilitator and the students can proceed according to their pace.

In addition to above reasons, VIII standard is the initial stage of the student in the secondary education so, it is very important to pay attention in teaching of English subject and guiding them properly to prepare them for the board examination and for better understanding about the subject which makes a strong base for higher education. Teaching them through CAI will help to be familiar with the teaching and learning with the help of computer which will expose them to technology. Teaching at this stage will provide them enough time for the preparation of board examination on which teachers as well as parents give more stress. Another reason for considering this study that English language teaching and computer are complimentary to each other as both hold importance place at present.

The researcher has selected the topic of English grammar, as English language needs special attention in grammar as it provides the base of English language to the students. Even grammar needs different situations for better explanation as many topics are considered to be complex for the students to understand. By putting the students into different situations the base for grammar can be strengthen. In that CAI can provide more drilling practice with different situations, which may not be possible for teacher at least at individual level.

From the reviewed studies the researcher has found that few studies were based on the teaching of English. They were for the students of early stage of their education and most of the studies conducted with students of Gujarati medium where English is

considered as a minor subject. Because of these reasons the researcher had taken up the present study in English medium schools of Gujarat, where English is considered to be the first language. Besides this the researcher also felt that sometimes the students of English medium do make common errors in grammar while communicating so as to provide them the experiences of different situation and structures the researcher had taken the study on English medium students.

Besides this, the school teachers are using teacher- centered approach while teaching English and due to that the teaching - learning becomes teacher dominated, boring and therefore the researcher made an effort to develop the package with which the students can learn the presented topic with their own pace and interest. The researcher also developed the package for standard VIII students because they need to improve their fundamental and basic English at this stage to have prepared for the X standard board examination. Besides that the syllabus of English of Gujarat Secondary and Higher Secondary Education Board (GS&HSEB) has just been changed by the board and the new syllabus of English has been prescribed to be taught with the help of the communicative approach in stead of translation method and structural approach that found to be quite difficult for both students and teachers. The present CAI package and its presentation in different modes may help a lot to the students to learn English grammar through some of the aspects of communicative approach and even it will provide them enough information regarding the structure of different constructions which will help them to use the language properly. Effectiveness of CAI may depend upon the mode of presentation of CAI in comparison to traditional method as well as among themselves and just to find out the option to traditional methods with better result if any, the researcher has selected a topic to present the CAI in different modes. Here the researcher has taken three different modes of presenting CAI viz. only CAI, CAI with repetition and CAI with discussion to find out whether the different modes have different/similar effects on students' achievement in comparison to traditional method. Though it is sure that CAI is individualized instruction, attempt has been taken to combine individual instructions with repetition and discussion and to see their effects on the achievement of the students. As it is not sure from any of the previous studies on CAI, that whether students repeat the CAI during the process of study or not. And

purposefully attempt has been made in the present study to repeat the CAI and to compare its effect with CAI without repetition. Similarly the attempt is also made to see whether CAI can be combined with class room discussion after the study of each unit by students as class room discussion is considered as one of the active components of students learning.

STATEMENT OF THE PROBLEM

Development and Implementation of CAI to Teach English Grammar to standard VIII students in Different Modes

OBJECTIVES OF THE STUDY

1. To develop the CAI to teach English Grammar to Standard VIII Gujarat Secondary and Higher Secondary Education Board (GS&HSEB) students in different modes (only CAI, CAI with repetition, CAI with discussion).
2. To study the effectiveness of the developed CAI in different modes in terms of students' achievement in English Grammar.
3. To study the effectiveness of the developed CAI in terms of the reactions of Students.
4. To study the relative effectiveness of the developed CAI in different modes of presentation (only CAI, CAI with repetition, CAI with discussion) in terms of differences in the adjusted post-test mean achievement of the student in English Grammar.

HYPOTHESES

1. There will be no significant difference between the adjusted post-test mean achievement scores of the students of control group and that of experiment groups those studied through CAI in English grammar, taking their pre-test score as covariate.

2. There will be no significant difference between the adjusted post-test mean achievement scores of the students of control group and that of experiment group1 (only CAI) in English grammar, taking their pre-test score as covariate.
3. There will be no significant difference between the adjusted post-test mean achievement scores of the students of control group and that of experiment group2 (CAI with Repetition) in English grammar, taking their pre-test score as covariate.
4. There will be no significant difference between the adjusted post-test mean achievement scores of the students of control group and that of experiment group3 (CAI with Discussion) in English grammar, taking their pre-test score as covariate.
5. There will be no significant difference in the adjusted post-test mean achievement scores of the students studying CAI in different modes taking their pre-test score as covariate.
6. There will be no significant difference between the adjusted post-test mean achievement scores of group1 i.e. taught through only CAI and group2 i.e. taught through CAI with repetition in English grammar, taking the pre-test as covariate.
7. There will be no significant difference between the adjusted post-test mean achievement scores of group 2 i.e. taught through CAI with Repetition and group3 i.e. taught through CAI with Discussion in English grammar, taking the pre-test as covariate.
8. There will be no significant difference between the adjusted post-test mean achievement scores of group 1 i.e. taught through only CAI and group 3 i.e. taught through CAI with Discussion, in English grammar taking the pre-test as covariate

All the hypotheses will be tested at 0.01 level of significance.

EXPLANATION OF TERMS

CAI: For this study CAI means Computer Assisted Instruction, which is a self-learning package, developed by the researcher with the help of power point presentation. It was based on the topics- Types of Sentences, Tenses, Voice, Coordinating

Conjunctions - 'And', 'But' and 'So', Adjective Clause, Modal Auxiliaries- 'Can', 'Could', 'Should', 'Would' and 'Must', Preposition – 'In', 'On' and 'Under' and Degree of Comparison.

Only CAI: Here, only CAI means teaching of English grammar with the help of the developed CAI only, that too only once, nothing else or additional to that in terms of drilling.

CAI with Repetition: Here, CAI with repetition means the researcher implemented the developed CAI to the particular group twice. The whole treatment was given to that particular group twice with the help of CAI.

CAI with Discussion: The researcher discussed the topics with the students in the class after they have gone through the CAI. The discussion took place after learning of each topic.

OPERATIONAL DEFINITION OF TERMS

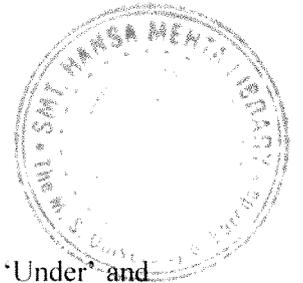
Achievement in English Grammar: The marks scored by the students, in the test constructed by the researcher, on the topics selected were considered as the achievement of the students for this study.

Reactions of Students: The scale value of the preferred belief of the students regarding the components of developed CAI was considered as the reaction towards that specific component on a five-point scale. The aggregate qualitative scale value was considered as the reaction towards the developed CAI.

DELIMITATION OF THE STUDY

The present study was delimited to standard VIII English medium students of the academic year 2008-2009 of Bright Day School, Vasna, Baroda only which follows the syllabus prescribed by Gujarat Secondary and Higher Secondary Education Board only.

English grammar is delimited to the topics i.e. Types of Sentences, Tenses, Voice, Coordinating Conjunctions - 'And', 'But' and 'So', Adjective Clause, Modal Auxiliaries-



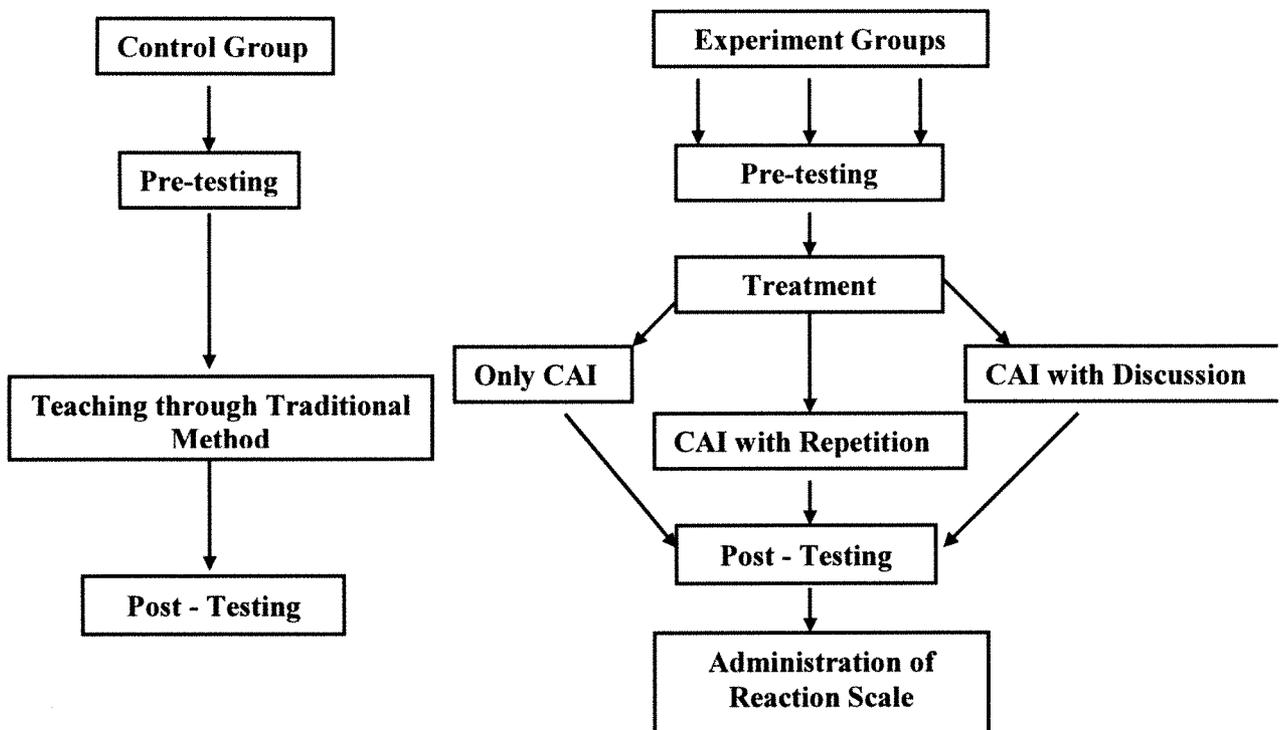
'Can', 'Could', 'Should', 'Would' and 'Must', Preposition – 'In', 'On' and 'Under' and Degree of Comparison.

METHODOLOGY OF THE STUDY

DESIGN OF THE STUDY

The present study is a developmental cum experimental study. Quasi Experimental research design was used for the present study.

The researcher followed pre-test – post-test control group design. For the purpose of studying the effectiveness of CAI to teach English grammar in different modes, parallel experiment groups were taken. The design of the study is presented in the diagram below:



POPULATION OF THE STUDY

All the students studying in Standard VIII English Medium schools of GS&HSEB constituted the population for the present study.

SAMPLE OF THE STUDY

The sample of the present study was selected purposively. For it the researcher selected standard VIII students studying in two schools of Vadodara namely, Bright Day School and Kelavani School during the academic year 2008-2009. These schools were selected with the purpose of getting all the required facilities. From the selected schools, **26** standard VIII students of only one division VIII-A of Kelavani School were taken as the Control Group and **62** standard VIII students of Bright Day School were treated as the Experiment Groups. From the students of the school of the experiment group, the researcher made three different groups comprises of **20**, **21** and **21** students for the implementation of CAI package in three different modes i.e. only CAI, CAI with Repetition and CAI with Discussion respectively. All the three groups were selected randomly using lottery method.

TOOLS FOR DATA COLLECTION

The researcher constructed achievement test for the pre-test and post-test purposes related to selected topics of English grammar of standard VIII English Medium following GS&HSEB curriculum. The achievement test included objective type questions. It included the transformation of sentences related to the selected topics - Types of Sentences, Tenses, Voice, Coordinating Conjunctions - 'And', 'But' and 'So', Adjective Clause, Modal Auxiliaries- 'Can', 'Could', 'Should', 'Would' and 'Must', Preposition – 'In', 'On' and 'Under' and Degree of Comparison of standard VIII of GS&HSEB. The constructed test was shown to the experts in the field of English. The suggestions were duly incorporated in the achievement test.

A Likert type five point reaction scale was prepared to know the reactions of the students of the experiment groups about the developed CAI. It was constructed by the researcher in which the students had to put tick mark (✓) in the appropriate box, ranging from Strongly Agree to Strongly Disagree.

The reaction scale included 22 statements to know the reactions of the students about their study experience with the developed CAI. Out of those 22 statements, six statements were negative and 16 statements were positive.

DEVELOPMENT OF CAI PACKAGE

The researcher developed the CAI package to teach English grammar, after analyzing standard VIII English text book of English medium school following the prescribed syllabus of GS&HSEB. The Powerpoint presentation was prepared related to selected topics. The presentation also included examples with structural aspects, pictures of lifelike situations and explanation for each topic so that the students can have the clarity about any confusion related to the topic. The package was shown to the experts in the field of education, technology as well as the English teachers teaching in different English Medium schools. The suggestions from these subject experts were duly incorporated time to time by the researcher. And the developed CAI has a scope for the teacher to be the facilitator and guide.

PROCEDURE OF DATA COLLECTION

The required data were collected with the help of achievement test in the form of pre-test, post-test and reaction scale which were constructed by the researcher. In between pre-test and post-test the researcher implemented the intervention programme in the form of CAI package for ten days for two hours per day on the experiment groups and control group was taught the same topics by their teacher. After the implementation of that the researcher administered the post-test after the span of fifteen days and the reactions of the students, based on teaching with CAI and the developed CAI itself were taken.

All required data were collected in three phases which is presented briefly in the following paragraphs.

The first phase was of pre-testing where the researcher administered the achievement test, which included sentences for transformation of sentences and pictures related to the topics, from which they have to make their own sentences according to the given instructions. The test was administered on all four groups – three experiment groups as well as on the control group. To complete the test, the students were given one hour.

The second phase was of Implementation of CAI in Different Modes where the researcher implemented the developed CAI on three experiment groups - group1 (only CAI), Group2 (CAI with Repetition) and Group3 (CAI with Discussion), after the gap of 15 days from pre-testing.

The developed CAI was implemented on two experiment groups – group1 (only CAI) and group2 (CAI with Repetition) together for six hours. The group2 (CAI with Repetition) was taught with the developed CAI again for six hours. The experiment group3 (CAI with Discussion) was taught with the developed CAI and at the same time, each topic was discussed with the students keeping the presentation in mind after each topic was learnt by them through CAI. Thus, all three experiment groups were taught totally for 20 hours i.e. the group with only CAI for six hours, the group with CAI with Repetition for six hours and the group with CAI with Discussion for eight hours.

All the topics included in the CAI were taught to the control group with traditional method. The topics were taught to them by their school teachers for four days one and half hour daily.

The third phase of data collection was the administration of achievement test as a post-test. It was administered on the groups after the gap of 15 day from the completion of implementation of CAI. The test was administered on all four groups i.e. three experiment groups and the control group. The same test, that was used as the pre-test was used post-test also. One hour was given to the student for writing the test.

After the administration of post-test the reaction scale was administered on all three experiment groups to know the reactions of students about the developed CAI.

DATA ANALYSIS

The collected data were analyzed quantitatively. Objective wise statistical technique used for data analysis is presented in the table 6.1.

Table 6.1: Objective and the technique used for analyzing data for that particular objective

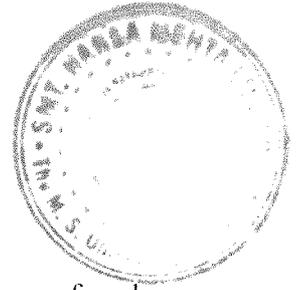
Objective	Statistical Techniques used
2	Analysis of Co-Variance (ANCOVA)
3	Frequency, Percentage and Intensity Index
4	Analysis of Co-Variance (ANCOVA) and t-test

Table 6.1, shows that for the Objective 2 of the present study, was analyzed with the help of Analysis of Co-Variance (ANCOVA), objective 3 was analyzed with that of Frequency, Percentage and Intensity Index and objective 4 was analyzed with that of Analysis of Co-Variance (ANCOVA) and t-test in accordance with the data.

MAJOR FINDINGS

The major findings that emerged from the present study are as follows.

1. The achievement of the students in English grammar taught through CAI was found significantly higher than that of the students taught through traditional method. Hence it can be said that teaching English grammar through CAI is comparatively better than traditional method in terms of the achievement of the students.
2. The achievement of the students taught through only CAI was found significantly higher in English grammar than that of the students taught through traditional method. Hence it can be said that teaching English grammar through only CAI is comparatively more effective than the traditional method in terms of the achievement of the students



3. The achievement of the students taught through CAI with Repetition was found significantly higher than the achievement of the students who were taught through traditional method. Hence it can be concluded that the teaching of English grammar through CAI with repetition was more fruitful than the teaching of English grammar with traditional method.
4. The achievement of the students taught through CAI with Discussion was found significantly higher than the achievement of the students who were taught through traditional method. Hence it can be concluded that the teaching of English grammar through CAI with Discussion was more effective than the teaching of English grammar with traditional method.
5. From the three modes of the presentation of this CAI, the mode i.e. teaching through CAI with discussion was found significantly superior in comparison to other two modes i.e. only CAI and CAI with repetition in terms of students' achievement in English grammar. No significant difference was found between two modes that only CAI and CAI with repetition.
6. CAI was also found to be effective in terms of the reaction of the students. As most of the students showed favorable reaction towards most of the components of CAI and CAI as a whole.

IMPLICATIONS OF THE PRESENT STUDY

The teacher and teaching should be changed as per the context and with the passage of time. Presently if one notices the use of technology, then one may find the students much more advanced than the teachers in its use. The technology has shown its great effect on the mind of the students so the present study is an effort to make use of computer in teaching of English grammar and the effect of that on the learning of the students. It was just an attempt to find out an innovative way of teaching grammar and to check the effectiveness. The following are some of the suggested implications of the present study on the basis of the major findings.

- To increase the effectiveness of teaching of English grammar the teachers should make use of computer or other technology so that the students get interest in learning.
- Not only the topics which were taught through the developed CAI by the researcher but other topics also should be taught with the help of this kind of package.
- The teaching through this kind of CAI effects more senses of the students and they make use of the learnt concepts in their real life.
- CAI with repetition and discussion mode shows the innovative way of using CAI in different way and making teaching learning more fruitful and interesting.
- Using only CAI for teaching learning has showed positive result as well as views in past but it can be used with discussion for better understanding of the students.
- CAI proved to be reducing the burden of the student as well as the teachers by increasing the capacity of both of them.

SUGGESTIONS FOR THE FURTHER STUDY

Since the present study was delimited to few topics of English grammar, the students of Bright School and power point presentation only the researcher would like to suggest some more topics for the further research.

- The same CAI can be used with some other modes.
- Other topics of English grammar can also be taught with the help of CAI.
- CAI based on prose or poetry aspect can also be prepared to teach literary aspects in much more interesting way.
- Much more advanced package can be developed for teaching same or similar topics of English grammar for future research.
- The effectiveness of the same CAI can be tested by taking other variables like gender and the urban rural background.
- True experimental design can be considered if feasible for better generalization.
- CAI can be prepared using other software like flash, max for better clarity and animation.

- Similar study can be conducted for the student of other board like CBSE or ICSE.

CONCLUSION

The developed CAI was found to be effective in terms of the students' achievement and the reactions. In comparison to traditional method of teaching through CAI has enhanced the learning of the students. The present study also revealed that even the modes of teaching can have different effect on the achievement of the student as the teaching through CAI with discussion has proved to be more effective in comparison to other two modes of teaching i.e. only CAI and CAI with repetition. The teacher can use it innovatively by providing them CAI for self learning and keeping only discussion in the class room. This kind of mode of teaching can involve the students in discussion which make learning participatory and interesting. It has also showed that CAI can be utilized along with discussion to harvest better learning. Findings of the study suggest that CAI can be used for self learning so that students can learn at their own pace, convenience and interest.