Chapter-5

Summary and Conclusions
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5.1 INTRODUCTION

The current age of 21st century is very well named as INFORMATION AGE and it's our dire need to motivate our students to enter into this age of information technology and skillfully adapt themselves to it. Today, computers have the potential of revitalizing education and society at large. Teachers and students can plan instruction that will cater as well as reciprocate to individual needs of both. There would be no mutual exclusiveness so far as teaching-learning process is concerned; rather theirs will be an effective and educational compatibility. In most aspects of human life, the present technology has helped us improve the quality and excel pace of activity and production as well. Man is a social construct; his education/learning depends on his environment. Computer has made a tangible effect on the environment; rather it has improvised the traditionally prevalent environment. So education as such can't be disassociated with it.

The investigator himself witnessed classroom management and teachers' presentations through computer-based multimedia strategy in the intermediate (secondary) schools of White Water, Wisconsin and Department of Education, University of
Wisconsin, USA during his visit as guest faculty in UWW from 1st September, 2005 to 17th October, 2005, he observed that a cut-throat international technological competition had placed an emphasis on computers in schools, which, installed in-time would certainly meet the increased expectations and demands of education system. CAI, CAL and CBI are being increasingly used in the schools and have contributed tremendously to individualized instruction.

Trend watchers and researchers across the globe have been keenly studying the way e-learning is evolving and many have accepted its capability to exceptionally enhance our current education system by tapping into the huge potential, the World Wide Web has to offer; educational institutions around the globe have been quick to put forward the distance education programs, a large part of these via internet, as an alternative for students who, for myriad reasons, cannot attend a more traditional program.

In India the key players in the young yet evolving e-learning industry are as given below:
MULTIMEDIA

The Interactive Multimedia Association of United States defines Multimedia in a more generalized manner:

"Multimedia can be defined as the technology engaging a variety of media, including texts, audio, video, graphics and animation, either separately or in combination, using computers to communicate ideas or to disseminate information."
MULTIMEDIA STRATEGY AND TECHNOLOGIES
IN EDUCATION

It is undoubtedly true that traditional teachers adopted "chalk-and-talk" strategy and students have learned with "paper-and-pencil" tools, but current educational systems expose the learners to a variety of technologies using video programs and computer software.

ANXIETY

In general anxiety can be either a trait anxiety or state anxiety. A trait anxiety is a stable characteristic or trait of a person.

A state anxiety is the one, which is aroused by some temporary condition of the environment- such as examination, accident, punishment etc.

Academic anxiety is a kind of state anxiety, which relates to the impending danger from the environment of the academic instructions including teachers and certain subjects like Mathematics or English or any other subject as the case may be.

Anxiety plays an important role in the achievement of a child. At the same time it should be kept in mind that only normal anxiety plays positive role but extreme anxiety plays a negative role in the achievement.
PARENT-CHILD RELATIONSHIP

Parental behavior means relationship of parent to child and of the child to parent. It requires adjustment on the part of the both. So there is a delicate interplay of psychological forces in parent-child relationship, which is in a constant state of flux.

In this techno-tronic age, life moves at a fast pace, which has enhanced the expectations of the parents from their children. At the same time parents have very little time to spend with their children because of their increased materialistic pursuits. Parents' role has changed due to the changing set up of the society.

5.2 EMERGENCE OF THE PROBLEM

LPG i.e. Liberalization, Privatization and Globalization have brought tremendous changes in the system and trends of education. On-line and off-line education through internet has given a new dimension of stress and strain among adolescents. Selection of job, making of the career, fulfillment of aspirations and dreams are the major problem-oriented aspects of their lives.

In the developed countries like America, England and others, the computers are used in each and every walk of life. These electronic machines have their great role in education too. In India, however,
multimedia with its latest features and applications has only recently entered in the main domain of education.

In the present study, the Investigator has made an attempt to see the effectiveness of active, reactive and transitive computer-based multimedia strategy in relation to academic anxiety and parent-child relationship. It remains to be seen whether the unique and versatile characteristics of computers can give some relief to the future generations in this competitive world of cyber age; the age duly equipped with multi dimensional and multi functional multimedia, with the apprehension as to what extent, the newly born media is proved to be successful to provide stress-free, value based environment and instruction in life-skills.

5.3 STATEMENT OF THE PROBLEM

“Effect Of Computer Based Multimedia Instructional Strategy On Achievement In English Language In Relation To Anxiety And Parent-Child Relationship At Secondary School Level.”

5.4 OBJECTIVES OF THE STUDY

The following were the major objectives of the study:

1. To study and compare the effect of computer based multimedia instructional strategy and
traditional methods on the use of grammar in English language.

2. To study the effect of academic anxiety on the use of grammar in English language.

3. To study the effect of Parent-child Relationship on the use of grammar in English language.

4. To study the interaction between strategies of teaching and academic anxiety.

5. To study the interaction between strategies of teaching and parent-child relationship.

6. To study the effect of interaction among Strategies of Teaching, Academic Anxiety and Parent-child relationship on achievement in English language.

5.5 HYPOTHESES

The present study was conducted to test the following hypotheses:

1. Students learning English through computer based multimedia instructional strategy will perform differently than those learning through traditional method of teaching English.

2. There will be a significant difference in the use of grammar in English language of groups having different anxiety levels.
3. There will be a significant difference in use of English language of groups having different parent-child relationship.

4. There will be a significant interaction between different strategies of teaching and academic anxiety.

5. There will be a significant interaction between different strategies of teaching and parent-child relationship.

6. There will be a significant interaction among strategies of teaching, academic anxiety and parent-child relationship.

5.6 DELIMITATION OF THE PROBLEM

The study was delimited with regard to the following aspects:

1. The study was conducted on IX standard students of urban schools of Hoshiarpur district

2. The study was delimited to English language course of IX standard only.

3. The study was delimited to the use of grammar in English language.

1. The study was restricted to academic anxiety only.

5.7 DESIGN OF THE STUDY

The present investigation is experimental in nature following quasi-experimental method with pre-test and post-test equivalent group design.
The present study involves three independent variables namely, Teaching strategies, Academic Anxiety and parent-child Relationship and one dependent variable i.e. achievement in English Language. To study the main effects and interactional effects of independent variables of Teaching strategies, academic anxiety and parent-child relationship on dependent variable of achievement in English language, technique of analysis of variance (ANOVA) was employed. The efforts here were directed to the question, “In what way and to what extent teaching strategies, academic anxiety and parent-child relationship with the cross classifications interact in affecting achievement in English language”. The answer to this question has been sought through the simple factorial (2X2) design and complex factorial design (2X2X2) analysis of variance (ANOVA).

As a requisite of factorial design of (2X2X2) ANOVA, incorporating in dependent variables of Teaching strategies, academic anxiety and parent-child relationship, the variable of teaching strategies was varied at two levels i.e. teaching through computer based multimedia instructional strategy and traditional (lecture) method of teaching through conventional strategy.
5.8 SAMPLE

In the present study, sample was drawn from the population of all the IX standard students studying in Senior Secondary Schools of Hoshiarpur City of Punjab State during the session 2004-05. Sample was raised through random cluster sampling method. First of all four schools namely, Govt. Sen. Sec. School, Clock Tower, Govt. Senior Secondary School, Railway Mandi; D.A.V. Sen. Sec. School, Arya Samaj Road and P.D. Arya Mahila Sen. Sr. School, Mall Road, Hoshiarpur were randomly selected from the total population of schools. From each school two sections were randomly selected. Each of the section was randomly designated to group –I

![Figure 5.7.1 Layout of 2X2X2 ANOVA with 8 Combinations.](image_url)
(MMS) and group-II (TM). Initially the sample consisted of 217 subjects, which was gradually reduced to 200 subjects to constitute the sample because 17 students could not take part in the complete experiment from pre-test to post-test. Among the sample of 200 students, group-I comprised of 100 students and group-II also comprised of 100 students.

All of them were domicile of Punjab; they were urban students. The school environment and school resources were same for both the groups as all the subjects were selected from urban schools of Hoshiarpur city of Punjab. For further experimentation, the students were selected on the basis of academic anxiety and parent-child relationship with in their groups.

5.9 TOOLS USED

As per objectives of the study, to measure the subjects during pre-test and post-test on dependent variable and independent variables, following two types of tools were used i.e. instructional tools and measuring tools:

1. INSTRUCTIONAL TOOLS: A CD-ROM titled SCHOOLROM EDUCATIONAL CD-ROMS for English grammar developed by STARDOTSTAR Computers India Pvt. Ltd. situated at A6, Basement, Gemini Parsn Complex, Chennai-6; was employed for instruction in English grammar for IX standard.
2. MEASURING TOOLS:

1. Academic Anxiety Scale for Children (DR. A.K. SINGH & DR. (KM) A. SEN GUPTA - 1986) was employed to measure the level of academic anxiety.

2. Parent-child Relationship Scale By DR. NALINI RAO-1989 was employed to measure the relationship of the students with their parents.

3. An Achievement Test to measure the achievement in English language (grammar) developed by the investigator was employed as pre-test & post-test.

5.10 PROCEDURE

The following procedure was adopted to conduct the experiment on a selected sample: it involved selection of students for treatment group & experimentation.

<table>
<thead>
<tr>
<th>TABLE 5.10.1</th>
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<tbody>
<tr>
<td>THE SCHEMATIC LAYOUT OF THE PROCEDURE FOLLOWED TO CONDUCT THE STUDY:</td>
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<tr>
<th>Phase</th>
<th>N = 100</th>
<th>N =100</th>
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<tbody>
<tr>
<td></td>
<td>Group A1</td>
<td>Group A2</td>
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<tr>
<td>1- Pre Test</td>
<td>1. Achievement Test as Pre-Test</td>
<td>1. Achievement Test as Pre-Test</td>
</tr>
<tr>
<td></td>
<td>2. Academic Anxiety Scale by Dr. S.K. Singh &amp; Dr. A. Sen Gupta</td>
<td>2. Academic Anxiety Scale by Dr. S.K. Singh and Dr. A. Sen Gupta</td>
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4. Students will be given instructions through multimedia strategy [i.e. CD-ROM multimedia] Students will be given instructions through Conventional strategy [i.e. verbalism generally]

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<tr>
<th>II-Instructional Stage</th>
<th>III-Post Test</th>
<th>5. Achievement Test as Post-Test</th>
<th>Achievement Test as Post-Test</th>
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5.11 DATA COLLECTION:

The tools mentioned under caption 5.9 were employed for data collection. In the present study, the data was collected keeping in view the objectives of the study. The data thus collected consisted of the following sets of scores in all:
- Pre-test Scores of Achievement in English Language.
- Academic Anxiety raw scores.
- Parent-Child Relationship raw scores.
- Post-test Scores of Achievement in English Language.

5.12 SCORING OF TESTS

After collection of data, the scoring of all the tests used as tools was done as per scoring keys mentioned in their manuals.

5.12.1 SCORING OF AASC: Academic Anxiety Scale for Children

The scoring of AASC was done according to the manual’s instructions & Key. The maximum possible score of this test was 20. In academic anxiety scale for children, each item of the test was scored as either +1 or 0.
5.12.2 SCORING OF PCRS

Scoring of Parent Child Relationship Scale was also done according to the manual instructions and key. The maximum possible scores of this scale were 1000. In PCRS, each item of the test was scored according to five point rating scale for both the forms – FATHER FORM and MOTHER FORM. Total score of sub-scales i.e. PRO, SP, REJ, DEM, IND, SR, LOV, OR AND NEG indicated the raw score for deciding the warmth relationship and hostile relationship, out of 100x10 marks. Total PCR score = (Fatherly Form + Motherly form)

5.12.3 SCORING OF ACHIEVEMENT TEST

Scoring of Achievement Test was done according to a handmade scoring key. The responses on achievement test as pre-test and post-test were scored separately. The total number of right responses were taken as the total score of students out of maximum possible scores which was 40 for given eight full-fledged questions with their sub-sets of 40 items in total. Gain score was the result of the score of post-test less the score of pre-test.
Post-test – pre-test score = gain scores.
5.13 STATISTICAL ANALYSIS OF DATA

Keeping in view, the design and objectives of the study following statistical techniques were employed to analyze the collected data.

1. Appropriate descriptive statistics such as mean, median, standard deviation, skewness and kurtosis were worked out to ascertain the nature of the distribution.

2. Test was employed to see the individual effectiveness of methods of teaching on achievement in English language.

3. Analysis of variance (2X2X2 ANOVA) was employed to study the main effects and Interactional effects of the variables under study.

4. In the case of teaching strategies, where F-ratio was found to be significant, t-ratio was calculated.

5. Tabulation and graphical representation wherever necessary were done. Results were interpreted with the help of mean scores computed from gain scores of teaching strategies.

5.14 FINDINGS & CONCLUSIONS

On the basis of analysis of the data, the following conclusions were drawn:
Relative effect of different instructional strategies on achievement of students in English language.

1. Significant differences were found in achievement of students in English language between the groups with regard to methods of teaching. The
mean scores of group-I (taught through computer based multimedia instructional strategy) showed that group-I scored higher than group II (taught through lecture method). Thus, we can say that computer based multimedia strategy is found to be more effective in improving the achievement of students in English language (particularly grammar) as compared to traditional method of teaching.

2. Different strategies of teaching English affected the scholastic achievement of the students. Computer based multimedia instructional strategy using CD-ROM was found slightly better than traditional method of verbalism and print media.

3. Testing phases affected the achievement of students as the higher achievement scores were obtained by the students taught through the multimedia in the post-test.

4. There was no significant difference in achievement in English language with regard to the levels of academic anxiety. The mean score of group having high academic anxiety did not show any significant difference as compared to the group having low academic anxiety.

5. There was no significant difference in terms of achievement in English language with regard to types of parent child relationship. The warm PCR
mean score did not indicate any significant difference as compared to hostile PCR mean score.

6. There was no interaction between strategies of teaching and academic anxiety so far as achievement in English language was concerned.

7. There was no interaction between strategies of teaching and parent child relationship so far as achievement in English language was concerned.

8. There was no interaction between different levels of academic anxiety (i.e. high and low) and types of parent child relationship (i.e. hostile and warm) so far as achievement in English language was concerned.

9. There was no Interactional effect among strategies of teaching, academic anxiety and parent child relationship on achievement in English language.

5.15 SUGGESTIONS FOR FURTHER RESEARCH

The results of present study open up certain new windows towards the fresh areas of further research in the discipline of Education.

1. The present study may be conducted in some other school subjects at elementary, secondary and senior secondary levels.

2. The present study may be conducted in some other classical languages like Sanskrit, Greek, Latin etc. at school, college and university level.
3. Effectiveness of the study may be seen by involving more variables such as intelligence, teaching aptitude, mechanical aptitude, personality, self concept, environment of the classroom, cognitive style, motivation etc.

4. For arriving at results having wider applicability the present study may be replicated on a large sample i.e. state level or inter-state level.

5. Comparison of effectiveness of computer based multimedia instructional strategy can be done with other strategies of teaching prevailing in/outside the Nation.

Visualizing the changing scenario of the classroom in context of e-contents and e-learning on EDUSAT, we must explore and carry on the research in multimedia instructional strategy so that the posterior generations of students are benefited for their adventurous entry into the VCRs (visual class rooms) with Laptops and Palmtops in their possession for picking up instructions.