CHAPTER V

SUMMARY
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SUMMARY AND CONCLUSIONS

5.1 INTRODUCTION

As a nation we have moved from the agriculture age to the information age. Changes are taking place rapidly in the economic arena due to advances in technology. This is a sobering reality for the children of the information age. One of the greatest challenges and opportunities of the 21st century will be for schools at all levels to focus more on asserting students to become motivated in order that they can succeed in school. We need to enforce a recognition that all children can perform at higher levels of achievement. Robinson (1992) states that students characteristics as well as societal expectations have changed, while traditional methods and modes of instruction are still employed by a large number of educators. This is leading to a growing concern that the nation’s schools are unable to educate the youth and therefore, nontraditional methods and modes of instructions must be evaluated (Dewey, 1916). Because education is a process of empowerment by which the individuals are able to secure a better quality of life. Education is a light that shows the mankind the right direction to surge. Education should become a fun and thrill to them rather than burden and boredom. It not only imparts knowledge, skills and inculcate values but is also responsible for building human capital which breeds, drives and set technological innovation and economic growth. In today’s era, information and knowledge stand out as very important and critical input for growth and survival. With the impact of modern technique along with rapid strides of development in modern instructional technique, there is strong urge to refine and improve our teaching strategies and instructional technique with a view to realizing the fullest potentialities of the individual learner (Smith, 1993).

Experts in the field of education, all over the world are seriously thinking of the variety of approaches to teaching learning to achieve different instructional objectives. The traditional educational method in India cannot keep changing according to individual needs, aspirations and developmental needs of the people in India (Joyce & Weil, 1986). Many educationists' hits out at the conventional methods of teaching and observe that in these methods the children are dependent on their teachers which breed hostility. According to them to reduce hostility, the opportunities should be provided for self education (Arredondo & Block, 1990). In other words, the effective teaching takes place when students are given opportunities to participate in their own learning. Most of us agree that teaching and learning
in classroom setting is seldom effective. Generally the teachers tend to teach the way they are taught by their teachers. Therefore, these factors indicate that there is further need to study it in order to improve the prevailing conditions. And this can happen with the help of elaborate and systematic plan of action in teaching. Since the major objectives of teaching is to cause learning and the very heart of learning resolves around the strategy of teaching put to use.

Teaching with quality is both an art and science for which teacher acts as director of learning activities in the classroom. As an art, it portrays the imaginative and artistic abilities of the teacher in creating a worthwhile situation in classroom in which the learner learn and achieve the specific objectives and general aims of education (Ferreira, 2005). Teaching as a science points to logical, mechanical and procedural steps to be followed to attain an effective accomplishment of goals. A teacher really performs much as an artist who uses whatever materials and procedures may seem to contribute best to realizing the goals or images in his mind (Dorasami, 1996). So, for making teaching effective, teacher has to select proper methods or strategies.

Teaching strategy is a generalized plan for a lesson which includes structure, desired learner behavior in terms of goals of instruction and an outline of planned tactics necessary to implement the strategy (Atherton, 2011). Teaching strategy attempts to achieve maximum in terms of desired change in learner’s behavior. Teaching strategy can be classified into two main categories such as autocratic strategy and permissive style of teaching. Multimedia teaching in combination with mastery learning strategy can be a good attempt in imparting knowledge to the students. The technology will transform education from faculty centered to learner centered and making instructions better by replacing the “Sage on the stage” with interactive individualized learning possibilities (Kelly and Schorger, 2002).

In selecting teaching strategies, the main emphasis is given to achieve some learning objectives rather than student’s interests. The learning objectives and learning conditions are main criteria for choosing appropriate teaching strategies. In present study online mastery learning strategy has been used. Online mastery learning is an appropriate instructional strategy that provides children with the appropriate learning conditions so that they can learn. In online mastery learning the study material is delivered through the internet, audio/video tape, satellite TV and CD-ROM. It can be through self-help or instructor led. It includes media in the shape of text, image, streaming video and audio or animation. These types of online programmes are able to match face to face courses in respect of academic quality and effectiveness. These types of online programmes empower the students to learn on their own.
Mastery learning is an alternative to the unsuccessful traditional methods of teaching and learning. Mastery learning is based on the philosophy that all children can become achievers if taught at a level of their own proficiency and encouraged to progress at a rate of their ability to master clearly defined units of learning (Okey, 1977). In mastery learning strategy each student is given the study material comprising of small learning segments called study units. The students consolidate on his ongoing study unit at his own pace. He is not allowed to move on to the next study unit unless he passes a criterion test with marks more than the prescribed level of achievement which is generally 80% to 100% marks. Students who have mastered the content are given “enrichment” opportunities, while those who have not mastered it receive additional instructions on the topic. Mastery learning does not focus on content, but on the process of mastering it. In a mastery learning classroom, the teacher directs a variety of group based instructional techniques (Arlin & Webster, 1983). The teacher also provide frequent and specific feedback by using diagnostic, formative tests, as well as regularly correcting mistakes students make along their learning path. The key elements in mastery learning are: (i) clearly specifying what is to be learnt and how it will be evaluated, (ii) allowing students to learn at their own pace, (iii) assessing student progress and providing appropriate feedback or remediation and (iv) testing that final learning criterion has been achieved. The literature indicates positive effects of mastery learning on students, especially in the areas of achievement, and attitude towards learning.

The great aim of education is not knowledge, but action. Online learning has been considered as an excellent medium of transmission and retrieval of information through course notes (Brown, 1997). Online education is a type of distance learning-taking courses without attending a brick-and-mortar school or university. Instead, online students and teachers interact over the internet. Online education not only enables students to take their courses anywhere at any time, but it increases student interaction, enables student centered teaching, facilitates peer to peer learning, and provides successful student learning outcomes. Students in online conditions performed modestly better, on average, than those learning the same materials through traditional face to face instructions. According to Kelley and Schorger (2002) online communication system offers a potentially rich social learning environment and flexibility in accessing online discussion, which can support and facilitate active group based online learning. Online instruction system allows learners to respond at a time that best suits to them.
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Online mastery learning strategy is starting to be recognized as an excellent medium for learning, not just a medium for transfer of information. Online mastery learning refers to any form of learning /teaching that take place via a computer network (Liu, 2005). Online mastery learning differs from the others due to its characteristics like individualization, flexibility, simulation, economical, reality based, maintainable, allow communication and can monitor actions.

Conventional education focuses on teaching, not learning. It incorrectly assumes that for every ounce of teaching will turn in an ounce of learning by those who are taught. However, most of us learn many things before, during, and after attending schools. Most of what is taught in classroom settings is forgotten, and sometimes what we remember proves irrelevant. The dependency of children on their teacher breeds hostility (Fehlen, 1976). To reduce hostility, the opportunities should be provided for self education. The more the autonomy, the lesser is the hostility and more the self dependence, lesser the hostility. The conventional method of classroom interaction is losing ground and a new strategy of mastery learning with properly structured learning steps and students advancing through the steps at their own pace is coming up. The mastery learning strategy can increase the achievement of learner and most students can master what we have to teach them. In mastery learning strategy the student is expected to take charge of his learning at approximate rate to his capacity and potential.

The term learning outcomes refers to the acquisition of behavior being developed by the new S-R Connections. It is relatively permanent behavior change tendency and is result of reinforced practice (Kimble and Germazy, 1965). It is just like simple events that happen under certain conditions. It occurs when certain observable changes in human behavior take place that justify the inferences of learning (Gagne, 1977). He distinguished ten types of learning outcomes acquired by pupils as a result of their school and out of school learning. These are: skills, knowledge, concepts, understanding, application, activities, appreciations, attitudes, interests and adjustments. Thus, learning outcomes is the specification of what a student should learn as a result of the period of specified and supported study.

Achievement is the pivot and the center of educational growth and development. It is measured and assessed by achievement test and compared to the set norms to evaluate an individual's performance. Achievement means the amount of knowledge gained by the student in different subjects of study. It encourages the students to work hard and learn more. Also it helps the teacher to know whether their teaching methods are effective or not and help
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them to bring improvement accordingly (Dewey, 1916). Achievement refers to pupil’s knowledge, attainment and skill development in the school subjects which are assured by the authorities with the help of achievement test, in the form of examination and generally indicated by the test scores or by marks assigned by the teachers. Achievement means all those behavioral changes which take place in the individual as a result of learning experience of various kinds. It is concerned with the quality and quantity of learning attainment in a subject of study, or group of subjects, after a period of instructions (Morrison, 1926). It signifies successfully carried out performance by an individual or a group assessed after the completion of a task whether it is academic, manual, personal, social or extracurricular.

Intelligence is generally considered as the most important connector of achievement. So intelligence is the common factor to affect the achievement of the learner. Intelligence has been described as the general ability of the organism acting as a whole to utilizing understanding gained in past experience in dealing with a new or similar situation, to adjust or adopt quickly and readily to the environment, to learn without difficulty or to form new behavior pattern to meet a new situation by modification and readjustment of those already acquired (Smith, 1993).

Academic stress is that imposes an extra demand on child’s ability to cope often something that is new and different. The term academic stress has come into wide use in behavior study only within the past two decades. But in this relatively short time it has all but pre-tempted a field previously shared by a number of other concepts like anxiety, frustration, conflicts etc. In general term stress is a reaction to an event it can only be sensibly defined as perceptual phenomenon arising from a comparison between the demand on the person and his ability to cope with it. Academic stress is a mental distress with respect to some anticipated frustration associated with academic failure, anticipation of such failure even on awareness of the possibility of such failure (Gupta and Khan, 1987). Children stressed out due to academic stress show signs of emotional disabilities, aggressive behavior, shyness, social phobia, psychosomatic illness, such as contribution, vomiting, fever, chest pain, abdominal pain dizziness etc. Adolescents at time start behaving angrily, agitatedly and suspiciously during the period of stress. Academic stress occurs when there is substantive imbalance between environmental demand and response capability of organism.

5.2 NEED AND SIGNIFICANCE OF THE STUDY

An appropriate teaching strategy helps the teacher in solving learner's problems as well as to bring remarkable improvement in their overall behaviour. In this twenty first
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century where English medium schools are prevalent and main focus is on the role that schools serve in educating students for a technological world. There is a little doubt that internet has become the technology of choice in learning and teaching (Dabbagh and Kitsantas, 2005). It has been seen that there are technological advancements but students are lacking behind in the field of English language. The recent expansion of broadband access has brought internet in homes and schools and providing students and teachers with the opportunity to exploit the internet as learning and teaching tool (Moore & Kearsley, 2005). In the coming years school life may become harder for those children who are having problems with English language in general. It is absolutely clear after seeing that curriculum being taught in the schools, students cannot progress and achieve desired achievement until unless their teachers adopt appropriate teaching strategies and technologies. In literature classes, students are often told to develop writing skills which can be done better through online teaching because online courses are more writing intensive than traditional classes. Even discussion forum is one of the most exciting features of online teaching. In the traditional classroom, a question is raised by an instructor and same group of bright students respond. In online teaching discussion occur in a new dimension where every student is expected to respond. Teachers can take help of much type of teaching aids such as power point presentation, flash cards and immediate feed back tests etc. Students can use e-mail, chat rooms and discussion boards to establish study groups. Though students do not see a teacher in the classroom every day, online students can access their teacher better. They can pose questions through e-mail and can frequently engage in a dialogue that would be difficult to organize in a face to face system. Online education is a new teaching technology which allows you to attend lectures and classes by sitting in the comfort of your home.

So, it is expected that the present study will highlight the need to know the role of online master learning strategies in teaching of English language. The study compares the effectiveness of different teaching methods on student's achievements in English language learning in relation to their intelligence and academic stress. The study will help in finding the answers of questions like as how we can influence students attitude towards language learning. We will be able to provide appropriate learning environment by considering the individual differences of the students, so that there could not be any hindrance in achieving target learning. Findings of the present study will definitely add to the existing quantum of knowledge in the field of educational technology. It will be helpful to students to improve their learning skills in English language. Results of this type of study are likely to broaden our knowledge as to how we can approach towards positive results in English language teaching. It will also be helpful for teachers in understanding and adopting the approach of a
model and break the monopoly of the conventional teaching methods. Therefore the investigator made an attempt to enquire in the effectiveness of online mastery learning strategy on learning outcomes of 9th class students in relation to intelligence and academic stress.

5.3 STATEMENT OF THE PROBLEM

**EFFECT OF ONLINE MASTERY LEARNING STRATEGY ON LEARNING OUTCOMES OF 9TH CLASS STUDENTS IN RELATION TO INTELLIGENCE AND ACADEMIC STRESS**

5.4 OPERATIONAL DEFINITIONS OF THE VARIABLES

(i) **Online Mastery Learning Strategy:** online mastery learning strategy is starting to be recognized as an excellent medium for learning, not just a medium for transfer of information. Online mastery learning refers to any form of learning that takes place via a computer network. Online mastery learning differs from the others due to its characteristics like individualization, flexibility, simulation, reality based, maintainable, allow communication and can monitor actions.

(ii) **Conventional Teaching Strategy:** Conventional teaching is concerned with the teacher being the controller of the learning environment. Power and responsibility are held by the teacher and they play the role of instructor (in the form of lectures) and decision maker (in regards to curriculum content and specific outcomes). They regard students as having 'knowledge holes' that need to be filled with information. In short, the conventional teacher views that it is the teacher that causes learning to occur. Here teacher is generally active participant in the teaching learning process and the pupils are the passive ever, it is required. Teacher gives lecture to a class of nearly forty students with the help of some teaching aids, gives some home assignments and administer test periodically. These tests are given only to give marks to the students and have no values in terms of improving the quality of instructions.

(iii) **Learning Outcomes:** Learning outcomes describe what a student is expected to know, understand or be able to demonstrate at the end of a course in order to obtain a passing grade. Learning outcomes and ‘aims and objectives’ are often used synonymously, although they are not the same. Aims are concerned with teaching and the teacher’s intentions while learning outcomes are concerned with learning.

(iv) **Intelligence:** It is the cognitive ability of an individual to learn from experience, to reason well, to remember important information, and to cope with the demands of daily living. It is the global capacity of a person to act purposefully, to think rationally, and to deal effectively with his/her environment.
(v) **Academic Stress**: Academic stress is the stress aroused because of academic pressure. It is a kind of mental distress with respect to some anticipated frustration associated with academic failure or even an awareness of possibility of such failure.

### 5.5 DELIMITATIONS

The present study was delimited with respect to the following:

(i) The study was delimited to 9th class English students of English medium secondary schools of Mohali district affiliated to Central Board of Secondary Education, New Delhi only.

(ii) Fifteen lessons based on online mastery learning strategy and conventional teaching strategy was developed on topics such as determiners, tenses, modals, conjugation of verbs, questions tags, non finites, prepositions, passive voice, reported speech, word formation: compound words, prefixes and suffixes of English grammar from the prescribed syllabus of Class 9th affiliated to Central Board of Secondary Education, New Delhi only.

(iii) The experimental treatment was delimited to 40 working days of the academic session.

(iv) The present study was delimited to Bloom’s mastery learning strategy only.

(v) The study was confined to two classified variables i.e. intelligence and academic stress.

### 5.6 OBJECTIVES

The present study was designed to attain the following objectives:

1. To develop instructional material based on online mastery learning strategy and conventional teaching of English to class 9th at knowledge, comprehension and application levels.

2. To develop and standardized achievement test in English for selected units of English.

3. To study the differences on the learning outcomes of the students through online mastery learning strategy and conventional strategy of teaching at different taxonomy levels such as knowledge, comprehension, application and total learning outcomes.

4. To find out the difference between high and low intelligence groups of students on learning outcomes at different taxonomy levels.
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5. To study the differences between high, average and low academic stress groups of students on the learning outcomes at different taxonomic levels.

6. To study the interaction effect of online mastery learning strategy and intelligence on learning outcomes at different taxonomic levels.

7. To study the interaction effect of online mastery learning strategy and academic stress on learning outcomes at different taxonomic levels.

8. To study the interaction effect of intelligence and academic stress on learning outcomes at different taxonomic levels.

9. To find out the interaction effects among the variables of intelligence, academic stress and instructional strategy on learning outcomes.

10. To compute the inter-correlations between instructional strategy and intelligence on learning outcomes of students.

11. To compute the inter-correlations between instructional strategy and academic stress on learning outcomes of students.

5.7 HYPOTHESES

The following hypotheses were formulated for conducting the study such as:

\( H_1 \) There exists no significant difference in gain means of students on learning outcomes in English of groups taught through online mastery learning and conventional teaching strategy at
(i) Knowledge level
(ii) Comprehension level
(iii) Application level
(iv) Total learning outcomes

\( H_2 \) There exists no significant differences on learning outcomes of high and low intelligence groups of students at
(i) Knowledge level
(ii) Comprehension level
(iii) Application level
(iv) Total learning outcomes

\( H_3 \) There exists no significant differences on learning outcomes of high, average and low academic stress groups of students at
(i) Knowledge level
(ii) Comprehension level
(iii) Application level
(iv) Total learning outcomes
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H₄₀ There exists no significant interaction effect of instructional strategy and intelligence on learning outcomes of students at
(i) Knowledge level
(ii) Comprehension level
(iii) Application level
(iv) Total learning outcomes

H₅₀ There exists no significant interaction effect of instructional strategies and academic stress on learning outcomes of students at
(i) Knowledge level
(ii) Comprehension level
(iii) Application level
(iv) Total learning outcomes

H₆₀ There exists no significant interaction effect of academic stress and intelligence on learning outcomes of students at
(i) Knowledge level
(ii) Comprehension level
(iii) Application level
(iv) Total learning outcomes

H₇₀ There exists no significant interaction effect among instructional strategy, academic stress and intelligence on learning outcomes of students at
(i) Knowledge level
(ii) Comprehension level
(iii) Application level
(iv) Total learning outcomes

H₈₀ There exists no significant relationship between instructional strategy and intelligence on learning outcomes of students at
(i) Knowledge level
(ii) Comprehension level
(iii) Application level
(iv) Total learning outcomes

H₉₀ There exists no significant relationship between instructional strategy and academic stress on learning outcomes of students at
(i) Knowledge level
(ii) Comprehension level
(iii) Application level
(iv) Total learning outcomes
5.8 SAMPLE

For drawing an adequate sample the researcher should have knowledge about the methods to draw a sample so that it could prove unbiased. According to Calfee (1975) a population is the theoretical set of all possible observations or a particular experiment. Different type of techniques can be used to obtain an appropriate sample. In the present study, in order to satisfy the real effort in experimental research, the logical statistical inference of purposive sampling was initially employed to select those schools which have Local Area Network Facility and then random sampling technique was used. The sample in the present study was drawn at two levels i.e. the school sample and the student sample.

3.2.1 THE SCHOOL SAMPLE

The sample was drawn from representative secondary schools of Mohali in Punjab which were affiliated to Central Board of Secondary Education, New Delhi. The schools were fulfilling the basic requirements for the present study i.e. computer facilities and English as a medium of instruction, yet these schools were not included in the study as their number is insufficient in the state to represent the total population. The schools affiliated to Central Board of Secondary Education, Mohali are fairly good in terms of English language education and computer facilities. The investigator delimited her study to private schools affiliated to Central Board of Secondary Education in the state of Punjab. The school sample comprising of 9th class students was drawn from the representative secondary schools of Mohali district which have the local area network facility. The average age of students ranged from 15-16 years. The names of schools were written down on slips of equal size. The names were folded into six symmetrical equal parts and put in an enclosed container. The lid was then covered and the box was shaken up many times for easy shuffling.

5.8.2. THE STUDENT SAMPLE

After selecting the schools, students were drawn randomly from schools. The study was conducted on 400 students of 9th class senior secondary schools studying in the Mohali district. The investigator selected 100 students i.e. 50 for control group and 50 for experimental group students from each school.

5.9 DESIGN

The present study was an experimental study in nature the investigator employed $2 \times 2 \times 3$ factorial design for gain scores. First group was considered as experimental group and the second group was considered as control group. The experimental group was taught topics related to English grammar through online mastery learning strategy. The experimental group
got its treatment through online only and the control group was taught same topic with conventional method of teaching. The study covered three variables such as instructional treatment, intelligence level and academic stress. The variables of instructional strategies were studied at two levels i.e. teaching with online mastery learning strategy and conventional teaching strategy. The variable of intelligence group was studied at two levels such as high and low intelligence groups. The variables of academic stress were studied at three levels such as high, average and low academic stress. These variables will work as independent variables whereas the dependent variable was achievement gain which was calculated as the difference in post-test and pre-test score for each subject.

5.10 TOOLS USED

Tools are the techniques which are appropriate for the collection of certain type of evidence or information for conducting the research. The tools used for the present study are given below:

(i) Standard Progressive Matrices (SPM) by Raven, Raven and Court (2000) to measure the intelligence levels of the students.


(iii) A Criterion Referenced Achievement Test on selected units of English grammar was developed by the investigator herself.

(iv) An Achievement Test in English grammar was developed by investigator herself to measure the performance of the students before and after the treatment.

(v) Instructional Material based on online mastery learning strategy was developed by the investigator herself.

(vi) Instructional Material based on conventional teaching strategy was developed by the investigator, herself.

5.11 PROCEDURE

After the selection of adequate sample and distribution of students in two groups for the implementation two strategies, the present experimental study was conducted in four phases as following:

First Phase, in this phase achievement test as a pre-test measure was administered on the tool sample. On the basis of pre-test scores the whole sample was divided into two groups i.e. experimental and control group. Before implementation of the online mastery learning strategy package, the two groups i.e. experimental and control groups were randomly
decided. The answer-sheets were scored to obtain the information regarding the previous knowledge of the students.

Second Phase, in this phase the investigator made necessary arrangements accordingly. Standard Progressive Matrices (SPM) was administered in each school of the experimental and control group. The groups were divided on the basis of intelligence levels attained by the students at two levels i.e. high and low intelligence. Kelley (1939) consideration of taking up 27% up and 27% bottom for consulting the high and low intelligence of the students respectively was taken care of while formulating the two groups. The academic stress scale was also administered in each school. On the basis of the frequency of stress the groups of academic stress were divided at three levels i.e. high, average and low academic stress. The answer-sheets were scored according to answer key to obtain knowledge of learners about the variables.

Third Phase, in this phase treatment was given to the experimental group. The experimental group was taught through online mastery leaning strategy and control group was taught by conventional teaching strategy by the investigator herself. The same content was taught to both the group for the same duration of time. The duration of instructional treatment was thirty sessions in each group with each session of 45 minutes. Regarding the experimental period, the investigator had already contacted with the heads of the schools taken for study and informed them that English grammar portion of 9th class syllabus would be taken by her. The investigator personally requested the concerned subject teachers of the schools for leaving English grammar portion of 9th class syllabus prescribed by Central Board of Secondary Education, New Delhi. It had taken time for experimental phase as per their suitability without disturbing their schedules. In experimental group, each student worked independently with the help of compact disc.

Fourth Phase, in this phase after the completion of the instructional programme, the same achievement test in English was administered as post-test to the students of both the groups. The students were given one hour to complete the test. The answer-sheets were scored with the help of scoring key. After the completion of test students were thanked for their full cooperation. Experiment and control group scores were compared according to their pre-test and post-test scores and difference was called as gain achievement scores of the experiment scores of the experiment and control group.

5.12 STATISTICAL TECHNIQUES USED

The following statistical techniques was employed to analyze the data obtained from the experiment in order to test the hypotheses.
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(i) Descriptive statistical techniques such as mean, standard deviation skewness and kurtosis were used to determine the nature of distribution of the scores.

(ii) Analysis of Variance (2×2×3) was employed on the gain achievement scores of the students, to test the hypotheses related to the strategies of teaching, intelligence levels and academic stress scores.

(iii) For the significant F- ratio, the t-test was used to find out the significance of difference between means related to different groups and different variables.

(iv) Product Moment Correlation was calculated to find out the relationship between learning outcomes with intelligence and academic stress at different taxonomic levels on learning outcomes.

(v) Graphical techniques were used for descriptive analysis and visual perception of the data.

5.13 FINDINGS

The data obtained from the experiment was statistically analyzed and the following results were obtained which were discussed under the following sub-headings:

5.13.1 ACHIEVEMENT AT KNOWLEDGE LEVEL

(i) Achievement of group taught through online mastery learning strategy was found more effective than that of conventional teaching strategy at knowledge level.

(ii) Achievement in English of high and low intelligence groups was not found significant at knowledge level.

(iii) Achievement in English of high, average and low academic stress groups was not found significant at knowledge level.

(iv) There was no significant interaction effect of instructional strategy and intelligence on achievement in English at knowledge level.

(v) There was no significant interaction effect of instructional strategy and academic stress on achievement in English at knowledge level.

(vi) There was significant interaction effect of intelligence and academic stress on achievement in English at knowledge level.

(vii) There was no significant interaction effect of instructional strategy, intelligence and academic stress on achievement in English at knowledge level.

(viii) There was positive and significant relationship between learning outcomes and intelligence at knowledge level.

(ix) There was positive and significant relationship between learning outcomes and academic stress at knowledge level.
5.13.2 ACHIEVEMENT AT COMPREHENSION LEVEL

(i) Achievement of group taught through online mastery learning strategy was found more effective than that of conventional teaching strategy at comprehension level.

(ii) Achievement in English of high and low intelligence groups was not found significant at comprehension level.

(iii) Achievement of students with different levels of academic stress was found to be significantly different from one another in English at comprehension level. Further analysis reveal that:

- The mean gain achievement was not found significant for high and average stress group at comprehension level.
- The mean gain of low academic stress group was significantly higher than that of high academic stress group.
- The mean gain of low academic stress group was significantly higher than that of average academic stress group.

(iv) There was no significant interaction effect of instructional strategy and intelligence on achievement in English at comprehension level.

(v) There was no significant interaction effect of instructional strategy and academic stress on achievement in English at comprehension level.

(vi) There was no significant interaction effect of intelligence and academic stress on achievement in English at comprehension level.

(vii) There was significant interaction effect of instructional strategy, intelligence and academic stress on achievement in English at comprehension level.

(viii) There was positive and significant relationship between learning outcomes and intelligence at comprehension level.

(ix) There was positive and significant relationship between learning outcomes and academic stress at comprehension level.

5.13.3 ACHIEVEMENT AT APPLICATION LEVEL

(i) Achievement of group taught through online mastery learning strategy was found more effective than that of conventional teaching strategy at application level.

(ii) Achievement of high and low intelligence groups was not found significant at application level in English.
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(iii) Achievement of high, average and low academic stress groups was not found significant at application level in English.

(iv) There was no significant interaction effect of instructional strategy and intelligence on achievement in English at application level.

(v) There was no significant interaction effect of instructional strategy and academic stress on achievement in English at application level.

(vi) There was significant interaction effect of intelligence and academic stress on achievement in English at application level.

(vii) There was no significant interaction effect of instructional strategy, intelligence and academic stress on achievement in English at application level.

(viii) There was positive and significant relationship between learning outcomes and intelligence at application level.

(ix) There was positive and significant relationship between learning outcomes and academic stress at application level.

5.13.4 ACHIEVEMENT AT TOTAL LEARNING OUTCOMES

(i) Achievement of group taught through online mastery learning strategy was found more effective than that of conventional teaching strategy at total learning outcomes.

(ii) Achievement in English of high and low intelligence groups was not found significant at total learning outcomes.

(iii) Achievement of students with different academic stress groups was found to be significantly different from one another in English at total learning outcomes. Further analyses reveal that:

• The mean gain achievement was not found significant for high and average stress groups at total learning outcomes.
• The mean gain of low academic stress group was significantly higher than that of high academic stress group.
• The mean gain of low academic stress group was significantly higher than that of average academic stress group.

(iv) There was no significant interaction effect of instructional strategy and intelligence on achievement in English at total learning outcomes.

(v) There was no significant interaction effect of instructional strategy and academic stress on achievement in English at total learning outcomes.

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(vi) There was no significant interaction effect of intelligence and academic stress on achievement in English at total learning outcomes.

(vii) There was significant interaction effect of instructional strategy, intelligence and academic stress on achievement in English at total learning outcomes.

(viii) There was positive and significant relationship between learning outcomes and intelligence at comprehension level.

(ix) There was positive and significant relationship between learning outcomes and academic stress at comprehension level.

5.14 EDUCATIONAL IMPLICATIONS OF THE FINDINGS

The findings for the present study have some very important implication for improving the quality as well as achievement in English grammar. English teachers should use online mastery learning strategy for enhancing the performance of the students. Under this strategy students will achieve more than students taught through conventional strategy of teaching. Through online mastery learning strategy students get enough time to master the concepts. So students who are exposed to online mastery learning will not forget the knowledge or concepts acquired.

This instructional strategy not only helps in developing thinking ability of the students but also the course could be completed in comparatively less time than the conventional method of teaching and the students will be able to use spare time for more educational activities. The study will help the English teacher to classify the students in various groups having different levels of achievement and teach them accordingly in order to raise their academic achievement.

Online mastery learning was found more effective than conventional teaching strategy. It may be suggested that teachers should be given orientation in the implication of online instructions for enhancing the learning of students. It may prove highly beneficial in organizing training and educational settings as it covers both teachers and students. Proper implementation of this strategy can help the students to boost various life skills as well as to lower the stress of academics. In the present piece of research work researcher developed an achievement test. It may be profitable added to the list of tools to benefit researchers and educational planners for measuring the achievement of students in English grammar. The construction of test will provide information to educators, students, parents and policy makers that will be valid, fair and reliable.
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The academic stress is a major concern of every parent, teacher and student. During the implementation of this study it was found effective to reduce the academic stress of students. It may be due to monitoring, self pacing and flexibility of this instructional strategy. The results may prove significant help for curriculum planners and implementers to view instructional strategies that may develop various life skills and lower the academic stress.

To conclude it is considered essential to bring out its usefulness in order to facilitate the process of learning and teaching with selection of appropriate teaching strategy. For counselors in schools working with language students, findings of the study can be useful in knowing the causes of poorer performance and academic stress.

5.15 SUGGESTIONS FOR FURTHER STUDIES

The following suggestions are made for the further researches:

(i) A study on achievement may be conducted by involving more topic on the entire course of English to personality, ability levels, creativity, socio-economic status etc.

(ii) The study may be replicated on a large sample of population for wider generalizations.

(iii) A study may be conducted at college level or university level in different subjects to find the effectiveness of online mastery learning strategy at higher grade levels.

(iv) A study may be conducted to compare the relative effectiveness of online mastery learning strategy and conventional teaching strategy in different disciplines in relation to the variables of the present study.

(v) Meta analysis of the studies in respect to online mastery learning strategy may be conducted.