EFFECT OF COMPUTER ASSISTED INSTRUCTION ON ACHIEVEMENT IN ACCOUNTANCY IN RELATION TO PROBLEM SOLVING ABILITY AND LEARNING STYLES

A SUMMARY OF THE THESIS
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SUMMARY

INTRODUCTION

Apple Computer Inc. (2002), “As the world become so complex, the skills that student needs to acquire and masters are quickly changing. The rapid changes in technology require students to learn and apply new skills in their academic and career endeavours. Students need to learn to communicate more effectively both through speech and written word”. T Entwistle (1981), Schmeck (1988), Ford & Chen (2001), “When learners can learn in a way that suits them, improvements in the effectiveness of the learning process normally ensue”. Ford and Chen (2001), “Matching/mismatching between teaching and learning styles can have significant effects on learning outcome”.

Students are more motivated to learn when technology is part of their daily school experience. Students show substantial improvement when technology is introduced into their curriculum (Gupta, 2008). Becker (1994), “Various technologies deliver different kinds of content and serve different purposes in the classroom. For example, word processing and e-mail promote communication skills; database and spreadsheet programs promote organizational skills; and modeling software promotes the understanding of science and math concepts. It is important to consider how these electronic technologies differ and what characteristics make them important as vehicles for education”.

Kong (2010), “Technology has improved effectiveness in numerous sectors of society such as information communication technology has the potential to help students’ master complex 21stcentury skills”. Nickerson (1995), “ While technology does not promote understanding in and of itself, it is a tool that can help students view learning as a constructive process and use simulations to draw students' attention”. delMas, Garfield & Chance (1999), “It provides a supportive environment that is rich in resources, aids exploration, creates an atmosphere in which ideas can be expressed freely, and provides encouragement when students make an effort to understand".
Accountancy is an important subject in school curriculum that has three major problem areas that cause ineffective learning; less emphasis on practical skills, lack of audiovisual aids and lack of efficient teachers. It is believed that computers help to overcome these problems by providing self-pacing instructions and enhancing the quality of Accountancy teaching and learning.

The primary form of student learning from computers is Discrete Educational Software (DES) programs, such as Integrated Learning Systems (ILS), Computer-Assisted Instruction (CAI), and Computer-Based Instruction (CBI). These software applications are also among the most widely available applications of educational technology in schools today, along with word-processing software, and have existed in classrooms for more than 20 years (Becker, Ravitz, & Wong, 1999).

The computer assisted instruction, which is the resultant of the findings of educational technology, is a boon for individualization of instruction. Computer assisted instruction is a way of individualizing instruction by using the capabilities of the computer to provide interactive experiences. The sequences of presentation that computer assisted instruction can provide differ from those provided by programmed instruction in being for more flexible, in using a variety of media, and in being genuinely individualized. There are several different modes of instruction. They involve different relationship between students and the system and identify different pattern of instruction. They also differ in other respects. Computer assisted instruction can be used to display lesson material, re-enforce learning, stimulate environmental conditions, provide drill and administer tests and so on. The different modes of computer assisted instruction are problem solving, inquiry mode, drill and practice modes, simulation, gaming, tutorial mode and combination of modes. Computer assisted instruction refers to educational software that can be run by students with little or no teacher assistance. Computer assisted instruction, where the teacher and computer is supportive, computer based instructions, computer manage instructions, to maintain performance of records, diagnostics and prescription (Pandian, 2003).

In computer assisted instruction, computer presents information, ask questions and verify responses in the same way a teacher does. Unlike traditional means of instructions, however computer assisted instruction allows students to work at their own paces and levels. Computer assisted instruction can be geared towards students’ needs, interests and expertise. It is generally considered to increase student motivation to learn. Bower (1977), “Computer
assisted instruction has now taken as so many dimensions that it can no longer be considered as simple derivative of the teaching machine or the kind of programmed learning that Skinner introduced.” Dambatta (2012), “Information that helps to teach or encourages interaction can be presented on computers in the form of text or in multimedia formats, which include photographs, videos, animation, speech, and music. The guided drill is a computer program that poses questions to students, returns feedback, and selects additional questions based on the students' responses. Recent guided drill systems incorporate the principles of education in addition to subject matter knowledge into the computer program”.

Several recent studies showed that use of computer assisted instruction increases achievement of the students. The following seven steps are involved to construct a computer assisted instruction package:

(i) Selection of the subject area and objectives
(ii) Defining the entering and terminal behavior
(iii) Content analysis and sequencing
(iv) Writing the frames
(v) Editing and review of the programme
(vi) Testing of the programme
(vii) Evaluating of the programme

Problem solving is that process which begins from cognitive situations and ends in achieving desired goals. It is an ability to choose among various responses in order to accomplish a task successfully. Problem solving involves understanding of the problem, analysis of data, looking for hidden questions, estimating a reasonable answer, setting up and solving the conditional statements and checking the answers.

Problem solving is a mental process and is a part of the larger problem across that includes problem finding and problem solving. It is considered as the most complex of all intellectual functions. Problem solving has been defined as higher order cognitive process that requires the modulation and control of more routine or fundamental skills. Intelligence and reasoning abilities can solve the complex problems quickly. Therefore, it is necessary that on one hand we try to develop intelligence and reasoning ability and on the other hand we should also develop the problem solving ability through proper education and training of
our young students. Problem solving is a mental process and is part of the larger problem process that includes problem finding and problem shaping.

Russell (1956), “A problem is a task which a child can understand but for which he does not have an immediate solution. Problem solving, accordingly, is the process by which the child goes from the task or problem as he sees it to a solution which, for him, meets the demands of the problem. Problems arise when children are confronted by an obstacle or a novel situation for which they have no direct answer in behaviour. Therefore, problem solving is likely to be more complex than the associative thinking and is more dominated by the objectives, external obstacles or situation than by the autistic factors which affect children’s fantasy. Problems can be practical or speculative”. Probably the most influential analysis of problem solving is that of Dewey in ‘How We Think’, first published in 1910. From a study of introspection, with illustrations of his own thinking, he derived the five main steps in thinking which have influenced so many subsequent reports. These four main steps in thinking are as follows:

(i) A felt difficulty
(ii) Its location and definition
(iii) Suggestion of possible solution.
(iv) Development by reasoning of the bearings of the suggestion (Russell 1956, p.256).

The main goal of the psychologist in the study of problem solving is to uncover the essence of the process. Traditionally, the psychologists has been interested primarily in what is left after the process has been stripped of what is specific to the particular problem or class of problems at hand. Conversely, much of what goes into solving particular problems ordinarily will be of only secondary interest to the psychologists. In attempting to uncover underlying processes, psychologists have employed a number of different strategies. For example, they have had subjects simply verbalize their thoughts as they attempt to solve problems. The records then are analyzed to see if useful hypotheses can be formulated to explain how people solve problems. Many techniques, of course, have been used to formulate hypotheses such as introspection, informal clinical observation, and previous experimental findings are just a few. Whatever the sources of hypotheses, however, the vast majority of experimental studies of problem solving have attempted to deal with the process in its full complexity. That is, most problem-solving studies have employed problem situations which involve both specific problem solving competencies and general cognitive processes.
Understanding problem solving from the standpoint of individual differences amounts to identifying test measures that correlate with problem-solving ability (Joseph, 1977).

Learning styles are the approaches that students prefer to adopt while learning and they become generally consistent behaviour. The way a person prefers to learn is called his/her learning style. There is no right or wrong/good or bad learning style. It has everything to do with the way a person’s brain works to learn and store information efficiently. This approach to learning emphasizes the fact that individuals perceive and process information in very different ways. Learning style is a concept that has been developed from the extensive work into cognitive styles, that is, how people think and act in certain ways. Learning is an important cognitive function that all organisms indulge into, adapt and survive in their environments. The level of learning achieved by a learner is one of the most important factors which indicate the success of a learning environment. Individuals may have different preferences with regard to when, where and how often to learn. The idea of individualized learning styles originated in the 1970s and has gained popularity in recent years. It has been proposed that teachers should assess the learning styles of their students and adapt their classroom methods to best fit each students learning style.

Kolb (1984) defined learning style is a method of personal choice to perceive and process information. In this sense, learning style is, on one hand, sensory and, on the other hand, mental. Kolb states that experiential learning theory, which defends that learning, is a combination of experience, cognition, perception and behaviour, lays the foundation of learning style model. He proposed a theory of learning styles to be applied in school settings. Learning styles have been also popularly studied with respect to achievement, intelligence, personality and gender differences.

Many people recognize that each person prefers different learning styles and techniques (Whiteley, 2007). Learning styles group common ways that people learn. Some people may find that they have a dominating style of learning, with far less use of other styles. In view of Schmeck (1982) “Learning style is a pre-disposition on the part of the learning strategy regardless of the specific demands of the learning tasks”. Shuell (1986) explains that “Different ways used by individuals to process and organize information or to respond to environmental stimuli refer to their learning styles”.
Kemp, Morrison & Ross (1998), “For the effectiveness of teaching environments, it is important to take account of group or individual learners’ characteristics, competence and experiences (pre-learning) throughout the process of planning learning environments”. One of these individual-specific differences is the learning style. Individual differences exist in the style of learning. Learning styles are the affective component of education that motivates a student to learn. So, the present research investigated the significance of computer assisted instruction method as an instructional strategy on acquisition of concepts in Accountancy and its effect on achievement of students in relation to problem solving ability and learning styles.

**NEED AND SIGNIFICANCE OF THE STUDY**

Investigator’s interest in this topic aroused because of the fact that the subject like Accountancy is not enjoying the position which it deserves. It is also not very much popular among the students. It has also been observed that the subject is considered as one of the social sciences and not as an independent discipline. But one cannot deny important values connected with this subject. There is general dissatisfaction with the result of commerce institutions. The students fail to grasp the spirit of the subject, the basic concepts and fundamental principles which are essential for clarity and understanding of the subject. With the result, the student takes it as a difficult, uninteresting, dull and dry subject. Student enter into high secondary comes with poor background of accounting, business concepts.

Collins, Deck & McCrickard (2008), “Many students find this very challenging because the ability to apply methodologies requires a deeper level of understanding than simply the ability to repeat lecture and text material. This often requires different study habits than those students may have previously used. To maximize their learning, students are encouraged to read text material before coming to class and to actively work on the concepts and principles covered in class by completing problems and testing themselves on the main topics being discussed in class”.

Collins, Deck & McCrickard (2008), “The need for students to be actively engaged in the learning process can create a pedagogical dilemma. Instructors recognize that completing chapter readings and homework assignments significantly increases the student’s ability to retain what is being taught, recognize alternative situations to which the concepts can be applied, and see the connection between topics throughout the course. Yet many students may not understand the amount of effort required to learn the subject matter at this cognitive
level and may not have the time management skills needed to achieve the disciplined study required by more rigorous courses. To address this dilemma and to insure that students are actively engaged in the learning process, instructors have typically given written homework assignments and/or frequent quizzes. Such methods are not necessarily optimal, for either instructors or students, because developing, distributing, and grading assignments and quizzes is often very time intensive, particularly for large classes. This implies an information lag between the learning process and an instructor’s knowledge of what students are learning”.

So to overcome problems and to accomplish objectives, there is a need of an efficient and flexible device that can store a massive amount of organized information and use a selected portion to meet the needs of individual learner. The computer is such a device, which can cater to needs of individual learner by storing vast amount of information.

As the modern society is becoming more and more dependent on Information and Communication Technology (ICT), there is a need to make computers an essential classroom tool for the acquisition, analysis, presentation and communication of information in ways that help in applying scientific knowledge, developing scientific attitude, facilitate learning of different fields, and allow students to become more active participant in teaching learning process. Collins, Deck & McCrickard (2008), “One option for motivating students and reducing this information lag is to incorporate computer assisted instruction as a pedagogical tool. For the instructor, an appropriate computer assisted instruction tool can reduce the time needed to develop, distribute, and grade assignments and quizzes; with the added benefit of providing more immediate feedback – to both instructors and students of the learning process. This can enable the instructor to reinforce those topics not well understood by students before moving on to the next learning objective. For students, the active learning and immediate feedback is promoted by computer assisted instruction”.

In computer assisted instruction, the students participate in the computer system on a direct basis, and the instructional materials are stored in computer system. In the classroom, computer assisted instruction offer more flexibility in presentation, and better management of instructional techniques. Various modes of computer assisted instruction i.e. tutorial, dialogue, simulation, drill and problem solving engage students in meaningful interactive dialogue, employ graphics, sound and simulations in learning facts and problem solving ability promote concept learning and clarity.
Thus the study was being done as the investigator feels that schools should develop a vision of how technology can improve teaching-learning process and make the pupils more informative. The investigator tried to develop computer assisted instructions package for teaching of Commerce at secondary level. Investigator also taken into account the effects of these methods on the students of different problem solving abilities and learning styles. As technology with its potential for presenting information in a wide variety of formats makes teaching tailored to wide variety of learning styles. By integrating technology, learners can be taken through different learning styles so that they can be benefited by learning through preferred styles and at the same time learn to adjust and function in styles that make them more balanced learners.

**STATEMENT OF THE PROBLEM**

The title of present research problem is stated as follows:-

**EFFECT OF COMPUTER ASSISTED INSTRUCTION ON ACHIEVEMENT IN ACCOUNTANCY IN RELATION TO PROBLEM SOLVING ABILITY AND LEARNING STYLES**

**OPERATIONAL DEFINITION OF THE VARIABLES**

- **Computer Assisted Instruction:** It is in many respects similar to programmed instruction. The learner answers questions and calls up the next learning sequence by using computer terminal. Computer assisted instruction moves at the students’ pace and usually does not move ahead until they have mastered the content or skill.

- **Conventional Method of Instruction:** The conventional educational system focuses entirely on intellectual and ignores experiential learning, teaches students how to succeed on tests or succeed in examination and not much more, has an authoritarian nature, and leads students to only extrinsically value education and not intrinsically value learning.

- **Achievement:** Achievement means performance in a subject or in a test. The achievement test is an investigator made test. It involves the set of questions from different lessons chosen for study. This helps to measure high and low achievement of students under study.
• **Problem Solving Ability:** The problem solving is a process of overcoming difficulties that appear to interfere with the attainment of a goal. It is an ability to choose among various responses in order to accomplish a task successfully.

• **Learning Styles:** Learning styles could be used to predict what kind of instructional strategies or methods would be most effective for a given individual and learning task. In the present study four types of learning styles were taken into consideration viz. Converging, Diverging, Accommodating and Assimilating.

**DELIMITATIONS**

The present study was delimited with respect to the following:

(i) The present study was confined to 10+2 students of senior secondary schools of Amritsar city affiliated to Central Board of Secondary Education, New Delhi.

(ii) 20 lessons based on computer assisted instruction and conventional method of instruction was developed in Accountancy.

(iii) The topics covered from the two units of Accountancy were: (i) Company’s accounts- Accounting for share capital (ii) Accounting for debentures.

(iv) The experimental treatment was confined to about 40 working days of academic session.

(v) The study was confined to two classifying variables i.e. problem solving ability and learning styles.

**OBJECTIVES**

The present study was designed to attain the following objectives:

1. To develop computer assisted instructional package for selected units of Accountancy.

2. To developed and standardized criterion referenced test for selected units of Accountancy.

3. To developed and standardized achievement test for selected units of Accountancy.

4. To compare the achievement of groups in Accountancy taught through computer assisted instructions and conventional method of instruction.
5. To compare the achievement of high and low groups of students on problem solving ability.

6. To compare the achievement of different groups of students on different learning styles.

7. To examine the interaction effect of instructional strategies and problem solving ability on achievement.

8. To study the interaction effect of instructional strategies and different learning styles on achievement.

9. To find out the interaction effect of problem solving ability and learning styles on achievement.

10. To examine the interaction effect of instructional strategies, problem solving ability and different learning styles on achievement.

**HYPOTHESES**

The study was designed to attain the following hypotheses:

**H1O:** The performance on Accountancy of computer assisted instruction group is significantly higher than that of conventional group.

**H2O:** The performance of high problem solving ability group is significantly higher than that of low problem solving ability group of students in Accountancy.

**H3O:** The performance of different learning style groups is significantly different from one another in Accountancy.

**H4O:** There exists no significant interaction effect of instructional strategies and problem solving ability on achievement.

**H5O:** There exists no significant interaction effect of instructional strategies and different learning styles on achievement.

**H6O:** There exists no significant interaction effect of problem solving ability and different learning styles on achievement.

**H7O:** There exists no significant interaction effect among instructional strategies, problem solving ability and different learning styles on achievement.
SAMPLE

The adequacy of sample depends upon our knowledge of the population as well as the method used in drawing the sample. A population is the theoretical set of all possible observations or a particular experiment (Calfee, 1975). Various techniques have been devised for obtaining 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 the two levels such as school sample and the student sample.

THE SCHOOL SAMPLE

There are 22 districts in Punjab, and each district has rural and urban schools. The rural schools were not taken for the present study as the medium of instruction is Punjabi and there was no facility of local area network. For the purpose of the present study, only urban schools were taken. Urban schools are either privately managed or managed by the government. The sample was drawn from representative secondary schools of Amritsar in Punjab who were affiliated to Central Board of Secondary Education, New Delhi. These schools are affiliated to one of the three examination boards i.e. Punjab School Education Board, Mohali, Indian Certificate of Secondary Education, New Delhi and Central Board of Secondary Education, New Delhi. Although schools affiliated to Indian Certificate of Secondary Education 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 science education and computer facilities in schools affiliated to Punjab School Education Board are very pathetic as compared to schools affiliated to Central Board of Secondary Education which are fairly good in terms of science education and computer facilities. The investigator therefore, delimited her study to private schools affiliated to Central Board of Secondary Education in the state of Punjab. The school sample comprising of 10+2 class students, was drawn from the representative secondary schools of Amritsar city which have the local area network facility. The average age of students ranged from
16-18 years. A list of the schools having local area network facility under the administration of the Amritsar city was procured.

The names of schools were written down on slips of equal size. The names were folded into six symmetrically equal parts and put in an enclosed container. The lid was then covered and the box was shaken up many times for easy shuffling. The investigator drew out the first four slips one by one bearing the names of each school which represented the population under investigation:

(i) Shri Ram Ashram Public School, Amritsar.
(ii) S.L.Bhawan’s Public School, Amritsar.
(iii) Senior Study Public School, Amritsar.
(iv) Shri Guru Harkrishan Senior Secondary Public School, Amritsar.

THE STUDENT SAMPLE

The study was conducted on 500 students of 10+2 senior secondary schools studying in the Amritsar city. These were English medium co-educational schools affiliated to Central Board of Secondary Education, New Delhi, a list of schools of Amritsar district was collected from District Education Officer, Amritsar. Out of the total sample of Amritsar district, the above four schools were selected. After selecting the schools of Amritsar city students were drawn randomly. 250 students were divided each into experimental and control group for the conduct of the experiment. The test of problem solving ability was administered and high and low problem solving groups on the variable was formulated. According to Kelley (1939) criteria of taking up top 27% and bottom 27% students as constituting the experimental and control group respectively. Then the test of learning styles was given to classify the students into four learning styles. It was assured that the treatment group and control group had adequate number of different learning styles.

DESIGN

The present study was designed to study the effect of computer assisted instruction on achievement in accountancy in relation to problem solving ability and learning style. The present study employed an experimental method with 2×2×4 factorial design for gain scores. The study covered three variables viz. (i) instructional strategies (ii) problem solving ability (iii) learning styles. The variables of instructional strategies studied at two levels i.e. teaching with computer assisted instruction and conventional method of instruction. The variable of
problem solving ability studied at two levels such as high problem solving ability and low problem solving ability. The variables of learning styles studied at four levels such as converging, diverging, accommodating and assimilating learning styles. These variables were work as independent variables. The main dependent variable was achievement gain which was calculated as the difference in post-test and pre-test score for each subject.

**TOOLS USED**

The following tools were used for the present study are given below:

(i) Revised Problem Solving Ability Test by Dubey (2011) was used.
(ii) Learning Style Inventory by Kolb (2007) was used.
(iii) A Criterion Referenced Test in Accountancy was developed by investigator herself.
(iv) An Achievement Test in Accountancy was developed and standardized by the investigator herself to measure the performance of students before and after the treatment.
(v) Computer Assisted Instructional Package in Accountancy was developed and validated by investigator herself with the help of software engineer.
(vi) Instructional Material on Conventional Method of Teaching in Accountancy was also prepared by the investigator herself.

**PROCEDURE**

After the selection of the sample and allocation of students in two groups for instructional strategies, the experiment was conducted in four phases as following:

*Firstly*, the investigator made necessary arrangements with the principals of schools selected for the experiment. An achievement test as a pre-test measure was administered on the total sample. The students were assigned to two groups such as experimental and control group on the basis of pre-test scores to make equivalent groups. Before implementing the computer assisted instructional package, the two groups i.e. experimental and control group were randomly decided and matched on the basis of pre-test scores so that equivalent groups could be formed. The answer-sheets were scored to obtain the information regarding the previous knowledge of the students.

*Secondly*, the problem solving ability test and learning styles inventory was administered in each school of the experiment and control group. The answer-sheets were
scored as per the answer key to obtain knowledge about threshold values of learners on the variables.

Thirdly, treatment was given to the experimental group. The experimental group was taught through computer assisted instruction package and the control group was taught by conventional method of instruction by the investigator herself. The same content was taught to both the groups for the same duration of time. The duration of instructional treatment was twenty sessions in each case 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 Accountancy portion of 10+2 class syllabus would be taken by her. The investigator personally requested the concerned subject teachers of the schools for leaving accountancy portion of class 10+2 syllabus prescribed by Central Board of Secondary Education, New Delhi. The investigator had taken the 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.

Fourthly, after the completion of the instructional program, the same achievement test in Accountancy was administered as post-test to the students of both the groups. The students were given forty minutes to complete the test. The answer-sheets were scored with the help of scoring key. After the completion of test students were thanked for for their full cooperation. The 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 and control group.

STATISTICAL TECHNIQUES USED

The following statistical techniques were employed to analyze the data obtained from the experiment in order to test the hypothesis:

(i) Descriptive Statistics such as mean, standard deviation, skewness and kurtosis were computed on the total sample to determine the nature of the distribution of the scores.
(ii) Analysis of Variance (2×2×4) was employed for mean gain achievement scores on problem solving ability and learning styles.
(iii) For the significant F-ratio, the t-test was employed so as to find out the significance of difference between means related to different groups and different variables.
(iv) Graphical techniques were used for descriptive analysis and visual perception of the data.
FINDINGS

The following results were obtained which are described below such as:

(i) The performance on Accountancy of computer assisted instruction group was found to be significantly higher than that of the group taught through conventional method of teaching.

(ii) The performance of high problem solving ability group was found to be significantly higher than that of low problem solving ability group of students in Accountancy.

(iii) The performance of students with different learning styles was found to be significantly different from one another in Accountancy. Further analysis revealed that:

• The mean gain achievement score was significantly higher on converging learning style group than that of accommodating learning style group.
• The mean gain achievement score was significantly higher on diverging learning style group than that of accommodating learning style group.
• The mean gain achievement score was not found significant on converging and diverging learning style groups.
• The mean gain achievement score was not found significant on converging and assimilating learning style groups.
• The mean gain achievement score was not found significant on diverging and assimilating learning style groups.
• The mean gain achievement score was not found significant on assimilating and accommodating learning style groups.

(iv) The interaction effect of instructional strategies and problem solving ability in respect of mean gain achievement scores in Accountancy was not found significant.

(v) There was no significant interaction effect of instructional strategies and different learning styles on mean gain achievement scores in Accountancy.

(vi) There was significant interaction effect of problem solving ability and different learning styles on mean gain achievement scores in Accountancy. Further analysis revealed that:
• High problem solving ability group exhibited significantly higher mean gain scores on converging learning style group than that converging, diverging, accommodating and assimilating learning style group of low problem solving ability.

• High problem solving ability group exhibited significantly higher mean gain scores on diverging learning style group than that of converging, diverging, accommodating and assimilating learning style group of low problem solving ability.

• High problem solving ability group exhibited significantly higher mean gain scores on accommodating learning style group converging, diverging, accommodating and assimilating learning style group of low problem solving ability.

• High problem solving ability group exhibited significantly higher mean gain scores on assimilating learning style group converging, diverging, accommodating and assimilating learning style group of low problem solving ability.

• Low problem solving ability group exhibited significantly higher mean gain scores on converging learning style group accommodating and assimilating learning style group of low problem solving ability.

• Low problem solving ability group exhibited significantly higher mean gain scores on diverging learning style group accommodating and assimilating learning style group of low problem solving ability.

• Rest of the combinations of learning styles and problem solving ability groups did not yield significant difference in mean gain achievement scores.

(vii) The interaction effect of instructional strategies, problem solving ability and different learning styles in respect of achievement in Accountancy was not found significant.

EDUCATIONAL IMPLICATIONS OF THE FINDINGS

The findings of the present study revealed that computer assisted instruction as an instructional strategy geared towards students’ needs, interests and expertise. It provided flexible learning environment and enhanced achievement in Accountancy. Also, it was observed that students responded positively when given the chance to actively process via technology. Teachers can easily modify and even produce their own presentations and computer assisted instruction materials based on needs of their own class. In the present research, students taught through computer assisted instruction exhibited better gain in achievement in acquisition of accountancy concepts as compared to students taught by
conventional method of teachings. Following are the educational implications of the present study:

(i) Computer assisted instruction should be utilized to enhance quality of education at school level and college level.

(ii) Teachers and parents should encourage their children to utilize educational packages available in the market.

(iii) Development of computer assisted instructional package is not an expensive affair because once the package is developed; it can be used for many years with the required updations.

(iv) Most of the teachers are not computer literate. Further, those who are computer literate are not equipped or trained to develop and use computer assisted instructional package in teaching learning process. In-service computer literate teachers can be given an opportunity to enhance their skills and competencies required for the development and use of computer assisted instructional package.

(v) Computer assisted instruction is an interactive instructional technique which uses a combination of text, graphics, sound and video and it is also useful in open and distance learning situations.

(vi) Computer assisted instructional package can be helpful to create positive teaching learning environment in classroom so it can be more useful and effective for the learners which helps each student to proceed with his own speed & capacity.

(vii) It is also helpful to increase their concentration & interest towards learning process.

(viii) School administrators should utilize such programmes in their schools.

**SUGGESTIONS FOR FURTHER RESEARCH**

In the light of the findings and conclusions drawn from the study, the following suggestions may be considered for further studies:

(i) Researches should be undertaken to determine the effectiveness of different forms of computer assisted instruction for various subject areas and at different grade levels.
(ii) To examine the effectiveness of computer assisted instructional package, an experiment with the students from different socio-economic status, cultural backgrounds such as urban and rural areas is needed.

(iii) An experiment with greater number of students from different secondary schools, representing a wider range of intelligence can be conducted.

(iv) The present study was conducted to see the effect of computer assisted instruction as instructional strategy in teaching of accountancy. Such studies are needed to be planned and conducted in other subject areas such as mathematics, economics and languages.

(vi) In the present study, the effect of computer assisted instruction was studied in relation to problem solving ability and learning style only. Further studies can widen scope by incorporating other variables like gender, achievement motivation, study habits, self concept, multiple intelligence and computer anxiety etc.

(vii) Diagnostic and remedial work can also be carried out in the field of education with the use of computer assisted instruction strategy.

(viii) The present study was conducted in private schools of Amritsar city. The further study can be extended to government schools and comparisons can be made on the effect of computer assisted instruction on achievement of students in private and government schools.

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