EFFECT OF EXPERIENTIAL LEARNING PROGRAMME ON ACADEMIC ACHIEVEMENT, SCIENCE SELF-EFFICACY AND SCIENTIFIC ATTITUDE OF SECONDARY SCHOOL STUDENTS

THESIS SUMMARY

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SUMMARY

The recent changes in teaching-learning process have made teaching-learning a challenging task emphasizing on creativity, curiosity, interest and values among students. Scientific innovations have developed the connectivity worldwide. Different concepts of learning are being incorporated in education, health, and scientific development. Science education in schools provides concepts, skills and competence, processes and abilities to work. It helps in developing the creativity and imagination. Linkage between existing knowledge and experience from classroom makes learning in science education more effective. The change in behaviour can be brought with the exposures of learning with experiences of reality, field projects, laboratory work and problem solving approach. Such an acquisition of knowledge would be concrete and help one to develop scientific attitude, enhance academic achievement and skills. Further, one’s feeling, thinking process and level of motivation help one to act upon in particular circumstances. This process is called self-efficacy involving the cognitive, motivational, and affective and selection processes.

Science and Kolb’s Model of Experiential Learning

In contemporary science education, science teaching in India is dominated by traditional chalk and talk method. There is a use of traditional method in teaching Science. However, the traditional method of teaching science has failed to develop knowledge, understanding, skill, self confidence scientific attitude and self belief on science subject. In comparison to traditional approach experiential learning is able to establish a connection between theoretical knowledge with problems of real world. Experiential learning is also an effective tool for the development of science self-efficacy through inquiry based learning opportunity and guided instructions. It was established that academic achievement was positively affected by self-efficacy. The new methods of teaching were to be explored so that desired knowledge, skills, attitude and competencies are developed among secondary school students. These types of activities were also helpful in generating positive attitude among students towards Science and Mathematics.
In Kolb’s model, concrete experiences (feeling) are facilitated for learning sciences followed by steps of reflective observation (watching) and abstract conceptualization (thinking). The last step is active experimentation (doing) taken by students based on learning completed in earlier three steps. In traditional method of teaching science it has been experienced that attention span of students was reduced and it encouraged rote learning. On the other hand experiential learning emphasizes on learning by doing. It uses the action like thinking critically, solving problems and making decisions based on the gained experiences. In this method of learning, students get direct experiences of teaching. In this way, this study will fill the gap of knowledge in learning Kolb’s experiential method with reference to academic achievement, science self-efficacy and scientific attitude of secondary school students.

**Academic Achievement**

Achievement is a state or condition of completing something. It can be an act of an individual or group and may contain elements of academic, personal or social area. The word ‘achievement’ is used interchangeably with academic achievement. Academic achievement or accomplishment is the degree to which student, teacher or an institution have achieved the objective of learning. Achievement is the acquisition of principles and generalizations along with the capacity to perform efficiently. It can be evaluated in terms of the level of information, knowledge and understanding of the learner. Academic achievement is used to evaluate what students have done, when they have completed a course. Academic achievement refers to assessment of a student’s progress in a particular academic subject area.

There are various factors like mode of instructions, attitude towards science, exposure to learning experiences affects the academic achievement in science. Skaalvik (1994), and Skaalvik and Rankin (1995) found that there is direct correlation between achievement and academic performance. Self directed learning motivates the learner inherently leading to positive results in academic achievement (Ryan, Connell and Deci, 1985). The students taught through laboratory mode of instruction have positive impact on academic achievement. There are factors which hinder the students from grasping the concepts of science learning like English language. The students are
unable to grasp the scientific terminology in English, as they are freely conversant with their mother tongue. Besides, there are many constructs like attitude, motivation, interest self confidence, parental support, peer encouragement and academic engagement of students which have direct impact on learning.

Science Self-Efficacy

The concept of self-efficacy is given by Albert Bandura. The theory contains the social learning and self-efficacy components together. It is one’s belief in own capability to arrange and act with the required action for a forthcoming situation. It may be considered as the ability/skill of learning or performativity at different assigned levels (Bandura, 1997). The beliefs of self-efficacy are about feelings of the people, thinking process, about motivating themselves and act in particular circumstances. It includes the cognitive, motivational, affective and selection processes. Further, Bandura (1994) considered that people lives in own psychological surroundings formed by themselves. This is the cause that parents’ worried psychological surroundings affect the aptitude to control beliefs and emotional feelings of a child. Their negative emotional feelings form the basis of decrease in emotional self-efficacy and vice-versa.

The science self-efficacy belief in the subject of science can be developed by four ways namely “mastery experiences, vicarious experiences, social persuasion and physiological feedback”. Mastery experience is gaining cognitive, behavioral, and self-regulatory techniques for achieving a suitable goal. The second way of increasing efficacy beliefs is vicarious experiences: by watching and observing other people’s success as it is helpful in elevating the observer’s viewpoint that they also hold potential to achieve mastery in such similar situations (Bandura, 1986; Schunk, 1987). Social persuasion means when people are convinced and praised by others regarding their capabilities and it is helpful in attaining mastery and appreciation (Litt, 1988; Schunk, 1989). The fourth source which is effectual in enhancing the self-efficacy of an individual is physiological feedback. If an individual is stressed and nervous, and doubts his/her skills, it leads to developing negative self-efficacy. On the other hand, if the individual is self-confident, it leads to joy, excitement and developing a positive
self-efficacy. Thus science self-efficacy is affected by experiences, assignment and circumstances that an individual receives throughout life. The studies of self-efficacy in the field of science imply that students’ believe in handling difficult science tasks, assignments, activities, solving any scientific problems, field visits, handling science projects determine their level of science self-efficacy (Bandura, 1997; Britner & Pajares, 2001). Besides it, different kinds of experience based activities contribute to raising the level of science self-efficacy among students. There are some research studies which showed that first hand concrete experiences, laboratories or other activity oriented strategies are capable of cultivating self-efficacy in science subject. Independent concrete experiences given as an assignment to students and its proper evaluation procedure, co-operative learning and positive environment of teacher and the taught serves as a practical way of increasing self-efficacy. For effective enhancement of science self-efficacy, students should be given freedom, so that they are able to explore the environment freely and get results.

**Scientific Attitude**

Science is involved in almost all spheres of human life and living. Our society is entirely drawn into the scientific surroundings. The notion of a world devoid of science, today, seems totally incomprehensible. Incredible achievements that science has made, have puffed up the modern world and changed the modern society into a logical and scientific society. It has illuminated human innovative potential. Science is included in school curriculum like other subjects. It inculcates certain special values like rationales, autistics, ethical modules, aesthetic sense, innovation, discipline, functionality and occupational efficiency. Science learning further plays an important role in providing training in scientific methods and scientific attitudes. Learning science can develop some faculties of mind through logical reasoning and conducting experiments. According to Grinnell (1992) scientific attitude is an organized description of the cognitive and societal description of science. Scientific attitude is the approach of a person to solving problems, assessment of thoughts and knowledge or information to arrive at particular decisions.
Scientific attitude is the result of science teaching that should nurture the qualities of assessing things objectively, thirst for garnering specific and correct knowledge and event assurance for information with the belief that answers to problematic questions will follow the application of affirmed information. Development of scientific attitude among students should always be considered by teachers. Without a questioning mind and a will of investigation, scientific attitude among learners can't be developed. The students must be encouraged to practice science studies. It gives them the opportunity to feel and develop scientific attitude. The important consequences of science learning are the development of scientific attitude among learners (Carin, 1997). Scientific attitude is basically a negative or positive approach towards the Science subject (Jones and Batts, 1983). Defining scientific attitude comprehensively, it can be concluded that it includes a person’s belief to deal with mental behaviour or a problematic situation, open mindedness, finding out the cause and effect relationship, critical judgment or evaluation, intellectual honesty, creativity, flexibility and originality.

**Statement of the Problem**

The title of research problem is: “Effect of Experiential Learning Programme on Academic Achievement, Science Self-Efficacy and Scientific Attitude of Secondary School Students”.

**Operational Definition of Terms Used**

i. **Experiential Learning programme**: Experiential learning programme refers to a series of learning activities viz. reading, observations, discussion, projects, field visits, role play learning through examples, observations, brainstorming, projects model building, laboratory activities, simulations, asking learners to use real problems, discussions, homework assignments, animation/video clips, cooperative learning, student debates, class game, learning by teaching, etc. This programme was employed by the Kolb’s four stage learning cycle in instructional sessions as a guide to facilitate learning arranged in a sequence.
ii. **Academic Achievement**: It is the performance of student in science subject and measured by scores attained by subjects. It was measured by self designed achievement test.

iii. **Science Self-Efficacy**: It is the perception of individual’s own ability towards science learning. In particular, it includes self-confidence, self regulation, self-concept, perceived science efficacy and outcome expectations.

iv. **Scientific Attitude**: Scientific attitude refers to “rationality, curiosity honesty, open-mindedness, aversion to superstitions, faith in scientific method, etc.”

v. **Secondary School Students**: Secondary school students refer to ninth class students of Government schools in Sonepat district of Haryana.

**Objectives**

The research is planned to realize the objectives as follows:

i. To design an experiential learning programme in science subject for secondary school students.

ii. To study the effect of experiential learning programme on academic achievement of secondary school students in science.

iii. To study the effect of experiential learning programme on science self-efficacy of secondary school students.

iv. To study the effect of experiential learning programme on scientific attitude of secondary school students.

**Hypotheses**

The following hypotheses were formulated to attain the objectives of research for secondary school students:

$H_1$ Experiential learning programme has a significant positive effect on academic achievement in science.

$H_2$ Experiential learning programme has a significant positive effect on science self-efficacy.
Summary

H₃: Experiential learning programme has significant positive effect on scientific attitude.

Delimitations

i. The research was delimited to 90 students studying in class IX of Government secondary schools in Sonepat district of Haryana.

ii. Sample students’ age was ranging between 14 to 17 years.

iii. The study examined the effects of experiential learning intervention programme on academic achievement, science self-efficacy and scientific attitude of secondary school students.

Method

The selection of methods for any research as based on objectives, nature and type of problem. Since the aim of present study was to find the “effect of experiential learning programme on academic achievement, science self-efficacy and scientific attitude of secondary school students”. Therefore, keeping in view the requirement of this research, experimental method was adopted. The testing of hypothesis was done under controlled conditions.

Variables

In an experimental study there are variables namely independent, dependent and extraneous. In the present study experiential learning programme (intervention) was an independent variable. The dependent variables used in the present study were the score obtained by subjects in science achievement test, science self-efficacy scale and scientific attitude scale. The intervening variables in the present study were academic scores in science and intelligence level. They were controlled by drawing samples randomly and equally in both experimental and control groups.
Sample
The analysis and outcomes of research is based on sample. In the present study, the population comprised of all government secondary school students of class IX of Sonepat district in Haryana state wherein syllabus of Board of School Education, Haryana was followed. At preliminary phase, the record of secondary schools from Haryana state was compiled by the researcher. The detail of schools and enrolled students were retrieved from website www.schooleducationharyana.gov.in. Five schools were randomly selected from the records and researcher personally visited these schools. Afterwards, “Kanya Gurukul Girls’ Senior Secondary School, Khanpur Kalan” agreed for intervention programme and act as sample of this study. Thereafter, 90 students were selected in experimental and control groups comprised 45 students each for intervention programme/experiment. Sampled subjects were informed about the purpose of the study with their willingness to participate in the experiment.

Tools Used
Keeping in view the objectives of study, the following tools were used:

i. Science Achievement Test (developed by the researcher).
ii. Science Self-Efficacy Scale (developed by the researcher).
iii. Scientific Attitude Scale (SAS) by Bajwa and Mahajan (2009).
iv. Experiential Learning programme based on “Kolb’s Model of experiential learning” (developed by researcher).

Data Collection
The experiment was completed in three phases. Each phase is described below:

i. Pre-Testing Phase
Before starting the experiment, Science Achievement test, Science Self-Efficacy Scale and Scientific Attitude Scale were administered on the experiment and control group as pre-test. The instructions regarding time limit, rules and procedure to attempt the tests, directions not to disfigure the booklets etc. were explained to the students briefly. The question-cum-answer sheets were collected back after the given allotted time.
ii. Execution Phase

In this phase, the investigator conducted classes on “Kolb’s model of experiential learning” in experimental group and also taught the classes of control group through traditional teaching. The intervention programme lasted for sixty days and day wise lesson plan were prepared and taught everyday for a period of forty minutes duration.

iii. Post-Testing Phase

At the end of intervention phase, again the testing of control group and experimental group was completed by application of “Science Achievement Test, Science Self-Efficacy Scale and Scientific Attitude Scale” as post-test.

Statistical Techniques Employed

The achievement of the research objectives was obtained by using following statistical procedures:

i. Normality of data was examined by employing K-S Test and Shpiro-Wilk Test.

ii. Mean and standard-deviation was evaluated by using scores of achievement test, science self-efficacy and scientific attitude.

iii. The mean scores’ significance of difference was calculated by employing ‘t’ test during pre-testing and post-testing phase of academic achievement in science, science self-efficacy and scientific attitude among experimental and control groups.

MAIN FINDINGS

The major research findings of variables are as follows:

Academic Achievement

One of the finding of the study is that teaching through experiential learning programme has statistically significant positive effect on science achievement. After teaching through experiential learning programme, students achieved better scores than conventional method. It is important to mention here that despite the significant results of both the groups, the academic achievement through experimental learning is
three times higher than conventional teaching. It is concluded that teaching through experiential learning is capable of enhancing the level of academic achievement of secondary school students. Important findings related to different instructional objectives of science academic achievement are as follows:

i. The experiential learning programmes were more effective in enhancing the level of achievement scores at knowledge level. Inversely, the negative trends were observed in conventional teaching.

ii. The mean score of post-test of experimental group is significant than post-testing score of control group at understanding level. This implies that there is a higher degree of effectiveness of experiential learning programme in nurturing the students’ achievement in science with respect to understanding objective.

iii. On the basis of mean score of post test of both groups it is clearly stated that experimental group had achieved better than control group on application objectives. Hence, it is clearly stated that through experiential learning programme students are able to apply the gained information more effectively than students of control group.

iv. The mean score of post-testing of skill objectives in experimental group are high as compared to control group. It clearly states that experiential learning programme has resulted in attainment of skill objectives by the students.

**Science Self-Efficacy**

Introduction of experiential learning programme to experimental group has resulted in positive, statistically significant change in science self-efficacy. The findings indicated that there was significant difference between mean score of pre-testing and post-testing of students in experimental group on science self-efficacy. Although, the enhancement in science self-efficacy level is also noticed in traditional teaching method, but interestingly, there is double improvement in gained scores of students exposed to experiential learning. So, it can be concluded that teaching through experiential learning programme is effective in enhancing the science self-efficacy.
Important findings related to different dimensions of science self-efficacy are as follows:

i. The experiential learning programme is capable of enhancing the self-confidence among students than the students taught through conventional method.

ii. It is inferred that students have increase in self regulation of science self efficacy through experiential learning, whereas, the decreasing trends were observed in case of self regulation through conventional teaching.

iii. The experiential learning programme was more effective than traditional teaching in enhancing the self-concept domain of science self-efficacy.

iv. There is positive effect of experiential learning programme on perceived science efficacy domain of science self-efficacy.

v. The experiential learning programmes were found to be more effective in outcome expectation dimension of science self-efficacy in experimental group than control group.

**Scientific Attitude**

Experiential learning programme has resulted in positive, statistically significant changes in scientific attitude of experimental group. Although, both the groups shows significant improvement in development of scientific attitude, but the improvement through experiential learning method is twice as compared to conventional teaching. Hence, it can be inferred that teaching through experiential learning programme had significant positive effect on scientific attitude.

Important findings related to different dimensions of scientific attitude are as follows:

i. The experiential learning programme is capable of enhancing the sense of rationality among students than conventional method.

ii. It is inferred that students have increase in the curiosity in experiential learning classes whereas, there is decreased in curiosity when taught trough conventional method.
iii. Both experiential learning and traditional method of teaching is capable of enhancing the open-mindedness domain, whereas the former has more influence on enhancing open-mindedness than lateral.

iv. The faith in scientific method in experimental group has increased to some extent, whereas, decreasing trends are noticed in control group. However, these changes are not statistically significant.

v. The experiential learning method of teaching is found effective in enhancing the disliking towards superstition and it is found statistically significant and in conventional classes it was observed non significant.

CONCLUSIONS

The findings revealed that teaching science through experiential learning programme resulted in positive and statistically significant change in science achievement. The results have clearly stated that through experiential learning, the quality of science education can be improved. It was found that various experiential learning methods helped students in attaining better score in science academic achievement test than the conventional method. The result is in congruence with the results of various studies showing that experiential learning activities help in improving the students’ academic achievement.

The current results are supported by previous studies conducted by various researchers. Camp (1990) remarked that students’ participation in out of class activities, field experiences like indoor and outdoor laboratory experiences are effective in enhancing abilities and achievements in academics. Similar results were shown by other researchers, Cheriyan (2010), Arrepattamanni (2012), Kaur (2012) and Jospeh (2015) found that learning Mathematics is effective through experiential learning method. Their findings also disclosed that web based instructions and inquiry based science instructions, have positive effect in enriching the academic achievement level of students in science than conventional method. The various activities associated with experiential learning are helpful in gaining better scores in science. Alkan (2016) and Adak (2017) observed with experiential learning programme and constructive model of learning, students got good ranking in Chemistry and
collectively in Science subject. The review of previous studies on experiential learning showed that intervention programme of experiential learning are extremely important if academic achievement need to be enhanced through multisensory approach. The observation of Dhanapal and Lim (2013), Leal-Rodriguez and Albort-Morant (2018), established that indoor and outdoor activities help in achieving the academic excellence among students, and also strongly recommend that activity based performance is capable of developing a link between students participation in experience based learning and its impact on their academic achievement.

Further, the effect of the experiential learning activity on science self-efficacy of secondary school students was explored. The science self-efficacy among students was found significantly different when taught through experiential learning programme. The results of present research are also sustained by Cannon and Scharmann (1996), Kiran and Sungur (2012) and Meluso, Zheng, Spires & Lester (2012). They found that there is a close association between various teaching strategies and its impact on enhancement of science self-efficacy. Various experiential learning activities like teaching through co-operative learning, collaborative science games, is capable of enhancing science self-efficacy among students and teacher as well. It was approved by Cheung (2014) that various efficacy enhancing technique like deep learning strategies directly affect the students science self-efficacy in Chemistry subject. Esters and Retallic (2013) found that agricultural and work based experiential learning programme have a positive impact on science self-efficacy.

The study also pointed towards effect of experiential learning programme on scientific attitude of secondary school students. The scientific attitude of students was found statistically significant in experiential learning classes. The findings of study showed significant effect of experiential learning programme on development of scientific attitude of learner which is in agreement with the studies of Alexender (1995) who showed that the best way to develop scientific attitude among learner is through science teaching. Mir and Jain (2015) emphasized on constructivism approach of teaching and justified that various constructivism approaches include experiential learning, inquiry based learning and problem solving methods etc. are functional aspects of meaningful learning than traditional method of teaching. Chaudhari (2015), Abed (2016) as well as Balaji (2017)
conducted studies and found that field trips, science excursions, drama and debate in science teaching are capable of generating curiosity for many scientific concepts and thereby changing the attitude towards science. Jeffery, Nomme, Deane, Pollock and Birol (2016) found that academics experience in science is helpful in developing belief, attitude and positive attitude towards science subject and even low performing students can do better by giving them added opportunities for experiential learning activities. Further, Oser and Fraser (2015) find out that students can gain better from different learning environment which is extending beyond class-room.

The achievement level of students in science taught through “Kolb’s Experiential Learning Model” is significant than conventional model. The objective-wise (Knowledge, Understanding, Application and skill) achievement in science taught through Kolb’s experiential learning model is significant in comparison traditional teaching. Hence, Kolb’s experiential learning model was found better than the traditional method of teaching with regard to total achievement and objective-wise achievement. The utilization of best possible resources can be used to make teaching learning process more interesting, helping students to make content more attractive and in attaining the various domains of educational objectives i.e. knowledge, understanding, application and skill domain.

Still many areas like development of science self-efficacy and scientific attitude of the learner need further improvement through experiential learning programme. In this regard experiential learning programme must be organized in order to enhance students’ participation. Consideration should be focused on concept clarity than content coverage. Various activities included in the experiential learning must be such that every student gets an opportunity for hands on learning experience. Training of senses must be given in such a manner that student will develop positive attitude towards science subject.

It can be concluded that experiential learning is a big challenge for teachers, students and as well as to policy makers. The best utilization of experiential learning technique is helpful in enhancing achievement level, self belief related to science subject, positive attitude towards science. The educationists, teachers, policy planners need to develop such experiential learning programme, so that best possible resources with regard to condition of schools, can be utilized in improving the standard of education.
EDUCATIONAL IMPLICATIONS
The outcomes of this research can be useful for researchers, students and teachers, and policy planner. The utility of this research as follows:

i. Experiential learning programme help significantly in raising the students’ achievement, which leads to more positive attitude towards out of class activities. Thus, when taught through experiential learning programme the students feel more involved in studies, which reflects that if properly implemented it, can be an interesting way of teaching.

ii. Experiential learning programme has the educational implications for all kinds of learners both within and outside the educational institutions like women, children and youth. Through experiential learning students can get information in an innovative way. This way of learning, therefore can help them in updating their knowledge, solving queries and having thorough understanding and application of the concept.

iii. Science subjects become very easy and interesting through interactive and realistic activities. Various topics related to the science subjects may be taught successfully by using this programme.

iv. Experiential learning programme on science can be more beneficial if positive attitude, towards this programme among learners could be developed. Utilizing these programmes effectively in teaching various subject and science particularly create positive attitude towards these activities among students, which will enhance motivation, increase curiosity, favorable attitude towards science.

v. The country needs people with capacity to think independently, logically, critically and also to create knowledge. In order to develop such capacities students need better understanding about science subject, which can be achieved by utilizing the experiential learning programme. Giving direct experiences to the students is the best way of science learning. The use of these programmes should be promoted to develop mastery of essential concepts and also to widen the already formed concepts in science for school students.
vi. The present study revealed that the use of experiential learning programme have positive effect on achievement. Hence, the use of this technology by teachers should be encouraged in science teaching for better achievement in science as well as in other subject also.

vii. The learning resources developed for experiential programme may be utilized by teacher and students.

viii. In order to implement the experiential learning programme effectively, the teachers need theoretical orientation, training, practical guidance and comprehensive knowledge of both theory and practice. New developments, orientation classes, refresher courses, workshops and seminars should be organized and the teachers should be familiarized with these programmes.

ix. Experiential learning programmes are better options to make Science learning lively and interesting at school level positive attitude of teachers is required for implementation of the programme.

x. Time-table and lesson plans should be so framed that the topics taught through experiential learning must be covered by the class teacher in time. The students face much difficulty in understanding the topic therefore, proper revisions could be made by its practical use.

xi. For implementing the experiential learning programmes, the facilities like proper space, seating arrangement, different learning materials, etc. need to be improved at every learning end to maintain academic atmosphere.

**IMPLICATION FOR POLICY MAKERS**

i. In-service teachers shall be invited and their ideas shall be duly acknowledged, by incorporating them in the development of experiential learning programme for different contents in science. The guidelines regarding its aims, objectives, time duration, content specific activities and its effective implementation should be very clear to make it understandable for the target group. Teachers may be given time for orientation regarding the programme by conducting refresher course, orientation programme, workshops and seminars etc.
ii. The study revealed that students finds difficulty in subjects like English, Science and Mathematics, so these subjects must be given due importance. But for the all-round development of the students, all subjects should be given equal importance and for every subject different types of experiential activities must be utilized.

iii. If somehow, students are unable to understand, the experiential learning activity must be repeated in simplified manner.

iv. The policy makers should take feedback from the teachers, principals and students. They must arrange conferences and seminars with teachers and principals from time to time so that the problems related to curriculum, methodology, physical facilities, technical problems etc. could be sorted out.

v. In-service teacher trainees must be exposed to innovative approach to teaching. Therefore, provisions should be made for in-service teacher education programmes to discover the innovative models like Kolb’s Experiential Learning Model. Modules must be developed by NCERT and SCERT at SWAYAM portal through MOOCs to make it convenient for in-service teacher and enrolled students.

RECOMMENDATIONS FOR FURTHER RESEARCH

Here are some suggestions and recommendations for further research:

i. The similar study can be extended to a larger sample and for longer span of time representing all districts in the state and for different subjects to ensure the reliability of result.

ii. The study was focused on evaluating the effectiveness of experiential learning on academic achievement in Science, Science self-efficacy and scientific attitude. This study can be extended to study the effect of this programme on other variables like science process skill, scientific creativity, interest in science and inculcating scientific skills etc.

iii. The study was conducted with respect to achievement in science, science self-efficacy and scientific attitude of students at secondary school level. Further,
studies may be extended to achievement of learners of different age groups, grade levels, and subject areas.

iv. Studies can be conducted to find out the effectiveness of experiential learning programme among slow learners, gifted children and under achievers.

v. This study may be extended to experiential learning in development of laboratory skills and conducting experiments among school students.

vi. The present study was conducted at school level whereas study can be conducted on colleges and universities.

vii. Similar study can also be conducted on use of experiential learning in teacher preparation /training programmes.

viii. The study can be replicated for children with special needs.

ix. There are teacher trainees who do not get proper exposure to innovative approaches of teaching. Hence provisions should be made in teacher education programmes to explore the possibilities of practicing innovative models like Kolb’s Experiential Learning Model based on established theories.