SUMMARY

INTRODUCTION
Education provides the skills for learning to know; learning to live together; learning to do and learning to be. Thus, education is the primary agent of transformation towards sustainable development and increasing people’s capacity to transform their vision for society into reality. Education not only provides scientific and technical skills, it also provides the motivation, justification, and social support for pursuing and applying them. Education plays a key role in moulding, shaping, reforming and reconstructing the society from time to time. In the present context of education, pupils’ academic achievement is the main concern of teachers, students and parents. Students’ academic achievement is one of the significant determinants of their success in future.

Teaching is the act of instruction and learning is the result of it. The main aim of teaching is to bring about socially desirable behavioural changes in the students and these can only be achieved by the effective way and is based on the principles of scientific teaching. According to Ayeni (2011), teaching is a process that involves bringing about desirable changes in learners so as to achieve specific outcomes. How the pupils will learn effectively and interestingly depends on the method of instruction adopted by the teachers. There is a great world outside and the mind within and it is the duty of the teacher to bring them together. This process of interpreting the world of knowledge in the child’s mind is called the method of teaching. Method is means of establishing a connective between the child and the subject matter. For effective teaching to take place in the class, a good method must be adopted by the teacher. A teacher has a number of options when choosing a style and a method to teach by. The teachers may write lesson plans of their own, borrow plans from others or search online or within books for lesson plans. A teacher will need to consider the students’ background knowledge, environment and learning goals while deciding what teaching method to use. Teachers should know that there are individual differences and all students learn and retain information in different ways. So, teachers should use techniques which cater to multiple learning styles to help students retain information and strengthen their understanding of the subject. A variety of strategies and methods can be adopted by the teachers to ensure that all students have equal opportunities to learn. The teacher should first
forget that he/ she is a teacher. Instead he/ she must possess the skills of a facilitator of
learning and genuineness, prizing and empathy (Rogers, 1969).

1.1 ACHIEVEMENT

Achievement has been considered an important factor in life. In this rapidly changing world
and with the growing advancement in science and technology the role of education has
become vital. At the time of admission, for entrance in job, for scholarship, for further
studies, academic achievement is the only criterion. The world is becoming more and more
competitive, and the quality of performance has become the key factor for school and
personal program. Academic achievement has always been a crucial point and main concern
of educational research despite varied statement about the aim of education. Academic
development of the students is the primary concern and the most important goal of education.
In the present scenario, the main concern of all educational efforts is to see what the learner
achieves as achievement is considered as an end product of all educational endeavours
(Gupta & Kapoor, 2012).

Achievement in academic subjects is a multidimensional and multifaceted phenomenon.
There are innumerable factors which affect academic achievement viz. intelligence,
personality, motivation, school environment, heredity, home environment, learning,
experiences at school, interests, aptitudes, family background, socio economic status of the
parents and many more other factors influenced the academic achievement. Sinha (1970)
reported that hard work, intelligence, memory, good health, availability of books, methods of
study, financial security and interest in social and practical work affect the academic scores.
McCombs and Marzano (1990) remarked that achievement outcomes have been regarded as
a function of two characteristics, skill and will. These must be considered separately because
possessing the will alone may not ensure success if the skill is lacking. Aggarwal et al.
(1998) reported that main factors affecting academic achievement are affective factors viz.
cognitive style, motivation, anxiety, study habits, level of aspiration, stress, value,
perseverance, self efficacy, emotional maturity, attitude, adjustment, interest, need and
curiosity; cognitive factors viz. ability, intelligence, creativity, problem solving, reasoning
ability and learning rate; school related factors viz. type of school, school climate, teacher’s
personality, home work, alienation, teachers’ expectation and attitude, training strategies,
teachers’ experience, medium of instruction, teachers’ behaviour and competency and class
room environment; home related factors viz. family size, birth order, socio economic status of family, gender bias, parental involvement, parental support, deprivation, child rearing practices, working networking parents, parental aptitude and expectations.

Parents wish that their children climb the ladder of performance as high as possible, which puts a lot of pressure on students. Parents care about their child’s scholastic achievement because they believe that good academic results will provide more career choices and job opportunities. This desire for a high level of achievement shapes their attitude towards the educational system. In the present system, the whole system of education revolves around the academic achievement of the students. A lot of time is being spent by the teachers and parents for helping the students to perform better in their academic subjects. ICT and the internet have a huge role to play in this.

1.2 ICT AND EDUCATION

In the pre-technology education context, the teacher is the sender or the source, the educational material is the information or message, and the student is the receiver of the information. In terms of delivery medium, the teacher can deliver the message via chalk and talk method and Overhead Projector (OHP) transparencies. Today, in the era of science and technology, learning styles of the students are changing rapidly. In Ancient times, students used to stay in Gurukuls where the teacher had full time and responsibility to shape their life for their betterment and the society. Then the system changed with the time to schooling where students went for specific period and teacher delivered lecture and used blackboard and chalk for making the students understand the subject better. In this traditional approach, teachers shouldered most of responsibilities for teaching in the classroom to make sure everything they taught were understood by the students in the limited period of time. With the passage of time and technological enhancement, education system has undergone various changes. In recent times, the world has witnessed a rapid increase in technological innovations. The teacher of today realizes the need for presenting different learning experiences to suit individual differences among pupils and attempts to use the modern and latest media and methods like smart classrooms. Teachers have started experimenting the change in teaching method and methodology. The traditional blackboard approach is gradually giving way to more interactive session between the instructor and students. Dynamic progress in information technologies has necessitated the change in educational
process, its purpose, in developing new pedagogical technologies, and to introduce more effective methods and means of teaching.

1.3 SMART CLASSROOM

In 2003, something that had remained unchanged for centuries - the classroom - changed forever. Educomp smart class came into being. It was a paradigm shift that did what no one had thought of before; bring technology into the classroom. Classrooms came alive and the perennial tug of war between the teacher’s challenge to explain and students’ struggle to understand gave way to an inspired participation in the journey of discovering new concepts. The tradition of Gurukul has been left behind with the modernized culture. Due to advances in computers and electronic media, the potential for quality education has been elevated with the appearance of innovative instructional methods employing multimedia equipment and resources. Multimedia approach to teaching and learning has become standard forms of education. The classroom has become digital and called as smart class.

Smart class is nothing, but a unique and latest way to teach children. In this technique, a broad screen is there on the wall (like blackboard) and a projector is fixed on the roof so as its rays reflect upon the screen. Through this technique, it is very easy to learn things. This technique works like a computer screen and also like a blackboard. For example, in ancient time, teachers used to teach us about any picture say, solar system, just by raising up her book and tell us about it. Students sitting away from teacher were really unable to grasp the things properly. But now, any such picture appears on the screen and all the students can easily see and understand topic easily. Smart class is an effective way of teaching method. It is entirely different from the old way of teaching by writing on blackboard. Here the projectors or screens are raised where the students can visualize and learn almost everything. They get a chance to see the experiments, incidents etc., they can hear, see and learn through smart class teaching. It is an interesting method of learning and the students get a chance to escape from the boredom of sleepy classes.

In a smart classroom, teaching happens through digital instruction material, 3D animated modules and videos, all the renowned schools are setting a benchmark for using this concept. Now the students are thrilled at this concept of innovative and interactive learning process. The concept of digitized classroom has not only made the education but it gave the students power to enhance their performance (Jain, 2012). Smart classroom has the following features:
Smart classroom helps the teachers to meet new challenges and developing abilities and performance of their students.

Smart classrooms enable the teachers to access multimedia content and information that can be used for capturing the attention of the students and teaching students more effectively.

Smart classroom enables the teachers to express their ideas and ensures that every learner is getting the undertaken concept or idea which has a remarkable effect on his achievement.

Achievement is possible only if concepts are presented effectively and clearly understood by the learners. It is possible though smart classroom teaching where all domains of knowledge are taken into consideration.

A well designed module of smart classroom allows the students to visualize the concept much better than static images.

Smart classroom teaching is a step towards the development where students’ achievement is highlighted.

Smart classroom teaching makes learning an enjoyable experience for students.

1.4 RATIONALE OF THE STUDY

There is nothing untouched with the use of technology. It plays a vital role in all spheres of human life. Education sector is also not an exception. Education encounters, in modern times, challenges in all aspects of social, economic & cultural life; the most important of which are over-population, over-knowledge, education philosophy development & the change of teacher’s role, the spread of illiteracy, lack of the staff & the technological development & mass media (Aloraini, 2012). The use of ICT is not new to the educational community. The use of older technologies such as the telephone, radio, print media and television has a longer and richer history as instructional tools and has remained embedded in educational system since ages.

In today’s world, teachers need to be equipped not only with subject expertise and effective teaching methodologies but with the capacity to assist students to meet demand of the emerging knowledge based society with new forms of ICT and need to have the ability to use that technology to enhance the quality of learning. Social Science is a subject with varied
importance and variegated utility. It helps in studying various political and social problems of the society. The study of social science at school level encourages an understanding of physical and social processes in a variety of places and under varying environmental conditions. However, the manner in which Social Science is taught in schools does not really fulfil the objectives of teaching Social Science. Social Science teachers at elementary level in schools generally prefer to teach by lecture method or traditional method. Development of ICT enabled classrooms or smart classrooms and widespread acceptance of ICT may suggest an alternative mode of instruction. Integration of ICT in teaching learning of Social Science is still in infancy stage. The use of ICT in teaching learning of Social Science classrooms has remained almost unexplored. A very few studies have been conducted in this direction and a lot of work needs to be done in this direction. Many linked queries and issues have remained unfold. Therefore it has been considered significant to conduct a study to evaluate the effectiveness of smart classroom packages in teaching learning of Social Science. Hence, the investigator decided to evaluate the effectiveness of smart classroom packages on achievement in Social Science at elementary level.

1.5 STATEMENT OF THE PROBLEM

“EFFECTIVENESS OF SMART CLASSROOM PACKAGE ON ACHIEVEMENT IN SOCIAL SCIENCE AT ELEMENTARY LEVEL”

1.6 OPERATIONAL DEFINITIONS OF KEY TERMS

The term used in the statement are defined as under:

**Smart Classroom Package:** By Smart Classroom Package here in this study, the Investigator means specially designed computer software providing video and audio material as well as text containing an organised learning system which includes an interrelated use of different media. It includes computer assisted instructional procedures beginning at the child’s level and progressing forward at the rate at which the child is able to learn. It is a combination of more than one medium that includes text, graphics, sound, animation and video. Several media range from visual literacy activities to fairly complex instructional sequences to effect specified learning outcomes with a minimum of teacher contact. It includes materials to be read, diagrams, pictures, learning activities, tasks and self-test.

**Achievement in Social Science:** In the present study, achievement has been viewed as mastery on the specified learning material (lessons from Social Science subject)
characterized by student’s scores on Social Science Achievement Test developed by the investigator himself.

**Elementary Level:** Elementary Education refers to the education imparted to children between the age group of 6 to 14 years. Elementary school students are students of standards I to VIII of schools recognized by the Government of Haryana. In the present study, elementary level refers to the students of standard VII following the syllabus of CBSE.

### 1.7 VARIABLES INVOLVED

**Independent Variables**
- Method of Teaching (Smart Classroom Teaching and Conventional Teaching)
- Locality (Urban and Rural)
- Gender (Male and Female)
- Intelligence (High Intelligence and Low Intelligence)

**Dependent Variable**
- Achievement in Social Science

### 1.8 OBJECTIVES OF THE STUDY

The present study is designed to realize the following objectives:

**A. Objectives related to the Development of Achievement Test and Opinionnaire**

1. To develop an Achievement Test in Social Science for Seventh Graders.
2. To develop an Opinionnaire for teachers to know the effectiveness of Smart Classroom Teaching.
3. To analyze the opinions of teachers towards the effectiveness of Smart Classroom Teaching.

**B. Objectives related to Achievement with respect to Method of Teaching, Locality and Gender**

4. To study the effect of (a) method of teaching, (b) locality, and (c) gender on achievement in Social Science among Seventh Graders.
5. To study the interaction effect of (a) method of teaching and locality; (b) method of teaching and gender; and (c) locality and gender on achievement in Social Science among Seventh Graders.
6. To find out the interaction effect of method of teaching, locality and gender on achievement in Social Science among Seventh Graders.
C. Objectives related to Achievement with respect to Method of Teaching, Gender and Intelligence

7. To study the effect of (a) method of teaching, (b) gender, and (c) intelligence on achievement in Social Science among Seventh Graders.

8. To study the interaction effect of (a) method of teaching and gender; (b) method of teaching and intelligence; and (c) gender and intelligence on achievement in Social Science among Seventh Graders.

9. To find out the interaction effect of method of teaching, gender and intelligence on achievement in Social Science among Seventh Graders.

D. Objectives related to Achievement with respect to Method of Teaching, Locality and Intelligence

10. To study the effect of (a) method of teaching, (b) locality, and (c) intelligence on achievement in Social Science among Seventh Graders.

11. To study the interaction effect of (a) method of teaching and locality; (b) method of teaching and intelligence; (c) locality and intelligence on achievement in Social Science among Seventh Graders.

12. To find out the interaction effect of method of teaching, locality and intelligence on achievement in Social Science among Seventh Graders.

1.9 HYPOTHESES OF THE STUDY

A. Hypotheses related to Achievement with respect to Method of Teaching, Locality, and Gender

Ho1 There exists no significant effect of (a) method of teaching, (b) locality, and (c) gender on Achievement in Social Science among Seventh Graders.

Ho2 There exists no significant interaction effect of (a) method of teaching and locality; (b) method of teaching and gender; and (c) locality and gender on Achievement in Social Science among Seventh Graders.

Ho3 There exists no significant interaction effect of method of teaching, locality and gender on Achievement in Social Science among Seventh Graders.
B. **Hypotheses related to Achievement with respect to Method of Teaching, Gender and Intelligence**

**Ho4** There exists no significant effect of (a) method of teaching, (b) gender, and (c) intelligence on Achievement in Social Science among Seventh Graders.

**Ho5** There exists no significant interaction effect of (a) method of teaching and gender; (b) method of teaching and intelligence; and (c) gender and intelligence on Achievement in Social Science among Seventh Graders.

**Ho6** There exists no significant interaction effect of method of teaching, gender and intelligence on Achievement in Social Science among Seventh Graders.

C. **Hypotheses related to Achievement with respect to Method of Teaching, Locality, and Intelligence**

**Ho7** There exists no significant effect of (a) method of teaching, (b) locality, and (c) intelligence on Achievement in Social Science among Seventh Graders.

**Ho8** There exists no significant interaction effect of (a) method of teaching and locality; (b) method of teaching and intelligence; and (C) locality and intelligence on Achievement in Social Science among Seventh Graders.

**Ho9** There exists no significant interaction effect of method of teaching, locality and intelligence on Achievement in Social Science among Seventh Graders.

1.10 **DELIMITATIONS OF THE STUDY**

Keeping in view the constraints of time and available resources the present study is delimited to the-

* The study is confined to the students of 7th class only.
* The study is delimited to English medium schools affiliated to CBSE only.
* The study is delimited to 430 students of District Jhajjar only.
* The study is delimited to Social Science subject only.

1.11 **CHAPTERIZATION SCHEME**

The present study titled as “Effectiveness of Smart Classroom Package on Achievement in Social Science at Elementary Level” has been developed in the following six chapters:

**Chapter 1: Introduction**

Chapter 1 being introductory, deals with the conceptual framework for the present study, role of ICT in education, concept of smart classroom, statement of the problem, the terms defined,
rationale of the study, variables involved, objectives of the study, hypothesis, and limitations of the study.

**Chapter 2: Review of Related Literature**

Chapter 2 deals with the review of the related literature.

**Chapter 3: Design and Procedure**

Chapter 3 focuses on the methodology of the study, design of the study, population and sample of the study, tools for data collection, procedure for data collection and statistical techniques used in the study etc.

**Chapter 4: Analysis, Interpretation and Discussion of Results**

Chapter 4 have details of analysis and interpretation of the collected data

**Chapter 5: Findings, Educational Implications and Suggestions for Further Research**

Chapter 5 is about findings, educational implications of the present study and suggestions for further research.

**Chapter 6: Summary**

This chapter provides a summary of the present study.

1.12 **DESIGN OF THE STUDY**

In the present investigation descriptive survey method was employed as the purpose of the research was to find out the effectiveness of smart classroom package on academic achievement of seventh graders in Social Science. The study was carried out in three phases which have been given below:

I. **Main Effect Phase:** In this phase, the main effects of method of teaching i.e. smart classroom teaching and conventional teaching, locality, gender and intelligence were studied separately. In this study the independent variables (method of teaching, locality, gender and intelligence) were varied at two levels as shown below.

II. **Double Interaction Phase:** In this phase, an attempt was made to find out the interaction effect of method of teaching and locality; method of teaching and gender; locality and gender: method of teaching and intelligence; locality and intelligence; gender and intelligence on achievement in Social Science of seventh graders. The subjects were given different designations and groups were formed to find out the interaction effect.
Interaction Effect of Method of Teaching and Locality (A×B) on Achievement in Social Science among Seventh Graders

- **A₁B₁**: Smart Classroom Teaching + Urban Students.
- **A₂B₁**: Conventional Teaching + Urban Students.
- **A₁B₂**: Smart Classroom Teaching + Rural Students.
- **A₂B₂**: Conventional Teaching + Rural Students

Interaction Effect of Locality and Gender (B×C) on Achievement in Social Science among Seventh Graders

- **B₁C₁**: Urban Students + Male Students.
- **B₂C₁**: Rural Students + Male Students.
- **B₁C₂**: Urban Students + Female Students.
- **B₂C₂**: Rural Students + Female Students

Interaction Effect of Method of Teaching and Gender (A×C) on Achievement in Social Science among Seventh Graders

- **A₁C₁**: Smart Classroom Teaching + Male Students.
- **A₂C₁**: Conventional Teaching + Male Students.
- **A₁C₂**: Smart Classroom Teaching + Female Students.
- **A₂C₂**: Conventional Teaching + Female Students

Interaction Effect of Method of Teaching and Intelligence (A×D) on Achievement in Social Science among Seventh Graders

- **A₁D₁**: Smart Classroom Teaching + High Level of Intelligence.
- **A₂D₁**: Conventional Teaching + High Level of Intelligence.
- **A₁D₂**: Smart Classroom Teaching + Low Level of Intelligence.
- **A₂D₂**: Conventional Teaching + Low Level of Intelligence
Interaction Effect of Gender and Intelligence (C×D) on Achievement in Social Science among Seventh Graders

- C₁D₁: Male Students + High Level of Intelligence.
- C₂D₁: Female Students + High Level of Intelligence.
- C₂D₂: Male Students + Low Level of Intelligence.
- C₂D₂: Female Students + Low Level of Intelligence.

Interaction Effect of Locality and Intelligence (B×D) on Achievement in Social Science among Seventh Graders

- B₁D₁: Urban Students + High Level of Intelligence.
- B₂D₁: Rural Students + High Level of Intelligence.
- B₁D₂: Urban Students + Low Level of Intelligence.
- B₂D₂: Rural Students + Low Level of Intelligence.

###Fig.1.1: Distribution of cells for Analysis of Interaction Effect of Method of Teaching, Locality and Gender on Achievement in Social Science among Seventh Graders

III. **Triple Interaction Phase:** A combined interaction effect of all the independent variables i.e. method of teaching, locality and gender; method of teaching, locality and intelligence; method of teaching, gender and intelligence was explored separately. The subjects were given different designations and groups were formed to find out the interaction effects which are also being represented diagrammatically in the Figures 1.1, 1.2, and 1.3 respectively.
Interaction Effect of Method of Teaching, Locality and Gender (A×B×C) on Achievement in Social Science among Seventh Graders

- A₁B₁C₁: Smart Classroom Teaching + Urban + Male Students
- A₂B₂C₂: Conventional Teaching + Rural + Female Students
- A₁B₁C₂: Smart Classroom Teaching + Urban + Female Students
- A₂B₂C₁: Conventional Teaching + Rural + Male Students
- A₁B₂C₁: Smart Classroom Teaching + Rural + Male Students
- A₂B₁C₁: Conventional Teaching + Urban + Male Students
- A₁B₂C₂: Smart Classroom Teaching + Rural + Female Students
- A₂B₁C₂: Conventional Teaching + Urban + Female Students.

Fig.1.2: Distribution of cells for Analysis of Interaction Effect of Method of Teaching, Locality and Gender on Achievement in Social Science among Seventh Graders

Interaction Effect of Method of Teaching, Locality and Intelligence (A×B×D) on Achievement in Social Science among Seventh Graders

- A₁B₁D₁: Smart Classroom Teaching + Urban Students + High Level of Intelligence
- A₂B₂D₂: Conventional Teaching + Rural Students + Low Level of Intelligence.
- A₁B₁D₂: Smart Classroom Teaching + Urban Students + Low Level of Intelligence.
- A₂B₂D₁: Conventional Teaching + Rural Students + High Level of Intelligence.
- A₁B₂D₁: Smart Classroom Teaching + Rural Students + High Level of Intelligence
- A₂B₁D₁: Conventional Teaching + Urban Students + High Level of Intelligence.
- A₁B₂D₂: Smart Classroom Teaching + Rural Students + Low Level of Intelligence.
- A₂B₁D₂: Conventional Teaching + Urban Students + Low Level of Intelligence.
Fig. 1.3: Distribution of cells for Analysis of Interaction Effect of Method of Teaching, Gender and Intelligence on Achievement in Social Science among Seventh Graders

Interaction Effect of Method of Teaching, Gender and Intelligence (A×C×D) on Achievement in Social Science among Seventh Graders

- $A_1C_1D_1$: Smart Classroom Teaching + Male Students + High Level of Intelligence.
- $A_2C_2D_2$: Conventional Teaching + Female Students + Low Level of Intelligence.
- $A_1C_1D_2$: Smart Classroom Teaching + Male Students + Low Level of Intelligence.
- $A_2C_2D_1$: Conventional Teaching + Female Students + High Level of Intelligence.
- $A_1C_2D_1$: Smart Classroom Teaching + Female Students + High Level of Intelligence.
- $A_2C_1D_1$: Conventional Teaching + Male Students + High Level of Intelligence.
- $A_1C_2D_2$: Smart Classroom Teaching + Female Students + Low Level of Intelligence.
- $A_2C_1D_2$: Conventional Teaching + Male Students + Low Level of Intelligence.

1.13 POPULATION AND SAMPLE

Population

The population of the present study comprised of seventh graders studying in co-educational English medium schools affiliated to CBSE in the state of Haryana.

Sample

In the present study, multistage random sampling technique was used to select a sample of 430 seventh graders from the target population. There are four zones (Ambala, Gurugram, Hisar and Rohtak) in the state of Haryana. In order to keep the study manageable and to select a sample that is true representative of the target population, Rohtak zone containing five districts (Rohtak, Jhajjar, Sonepat, Panipat and Jind) was selected randomly out of the four
zones of the state of Haryana. Thereafter, one district namely Jhajjar was selected randomly, out of the five districts of the selected zone i.e. Rohtak. Further, the list of English medium Private Schools affiliated to CBSE, located in district Jhajjar was obtained from the office of District Education Officer, Jhajjar (Haryana). After this, eight schools (four schools having smart classrooms and four schools without smart classrooms) were selected randomly from urban and rural areas for the present study. Finally, a sample of 430 seventh graders (216 from the schools having smart classrooms and 214 from the schools without smart classrooms) was taken from the said schools. Students were further classified on the basis of their intelligence level by administering General Intelligence Test (GIT). The students having high level of intelligence (IQ 113 and above) and having low level of intelligence (IQ 100 and below) were taken into consideration for the present study. The students of moderate level of intelligence (IQ 101-112) were not considered for the present study. School wise distribution of the sample has been shown in the table 1.1.

Table: 1.1
School wise Distribution of the Sample

<table>
<thead>
<tr>
<th>S No.</th>
<th>Name of the School</th>
<th>Method of Teaching</th>
<th>Locality</th>
<th>M</th>
<th>F</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>M.R. Sr. Sec. School, Hassanpur (Jhajjar)</td>
<td>Smart Classroom Teaching</td>
<td>Rural</td>
<td>28</td>
<td>23</td>
<td>51</td>
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<td>2</td>
<td>Ganga International School, Kablana (Jhajjar)</td>
<td>Smart Classroom Teaching</td>
<td>Rural</td>
<td>30</td>
<td>28</td>
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<td>3</td>
<td>Mother India Sr. Sec. School, Maraut (Jhajjar)</td>
<td>Conventional Teaching</td>
<td>Rural</td>
<td>32</td>
<td>29</td>
<td>61</td>
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<td>4</td>
<td>B.M.Sr. Sec. School, Chhuchhakwas (JJR)</td>
<td>Conventional Teaching</td>
<td>Rural</td>
<td>23</td>
<td>30</td>
<td>53</td>
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<td>5</td>
<td>H.R. Greenfield Sr. Sec. School, Jhajjar</td>
<td>Smart Classroom Teaching</td>
<td>Urban</td>
<td>28</td>
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<td>58</td>
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<td>6</td>
<td>L.A. Sr. Sec. School, Jhajjar</td>
<td>Smart Classroom Teaching</td>
<td>Urban</td>
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<td>7</td>
<td>Indo American Sr. Sec. School, Jhajjar</td>
<td>Conventional Teaching</td>
<td>Urban</td>
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<td>8</td>
<td>KSM Sr. Sec. School, Jhajjar</td>
<td>Conventional Teaching</td>
<td>Urban</td>
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</table>
1.14 TOOLS USED

The following tools were used for the purpose of collecting data related to different variables covered in the present study.

A. Standardized Tool

1. General Intelligence Test (GIT) by Mohsin (1990) to measure the intelligence of the students.

B. Self Developed Tools

1. Achievement Test in Social Science for seventh graders to measure their achievement.
2. Opinionnaire towards Effectiveness of Smart Classroom Teaching to know the opinion of teachers about effectiveness of smart classroom teaching.

1.15 PROCEDURE FOR DATA COLLECTION

First of all, Principals of concerned schools were contacted by the researcher. After getting consent and approval from the principals the tests were administered on the subjects in the following order.
1. Opinionnaire towards effectiveness of smart classroom teaching developed by the researcher himself was given to teachers to know their opinions about effectiveness of smart classroom teaching.
2. General Intelligence Test (GIT) by Mohsin (1990).
3. Achievement Test in Social Science for seventh graders developed by the researcher himself.

In the very beginning, an Opinionnaire towards effectiveness of smart classroom teaching developed by the researcher himself was also given to 40 teachers to answer in terms of their agreement/ disagreement on a three point scale. For scoring the opinionnaire, a score of ‘1’, ‘0’, and None was given to category Agree, Disagree, and Undecided respectively. The sum of these values gives the effectiveness of smart classroom teaching.

After this, General Intelligence Test (GIT) was administered on all the students to measure their intelligence. After completion the test, booklets/ answer sheets were collected from all the students and just after 5 minutes, an achievement test in Social Science developed by the researcher himself was given to all the students to measure their achievement. After the prescribed time (40-45 minutes), booklets for achievement test in Social Science were
collected from all the students. Scoring of General Intelligence Test (GIT) was done as per instructions given in the manual for the same. Scoring of achievement test in Social Science was done on the basis of answer key prepared by the researcher himself. A score of ‘1’ was given to each correct response and ‘0’ was given to each incorrect response of the students. However before administration of the test, purpose of the data collection was told to the students and conducive environment was developed by the researcher. Instructions with regard to answering the various tests were given to the subjects. They were assured that their responses were not disclosed to anyone. A break of 5-7 minutes was given to the students between two tests. After completion of the test, answer sheets or booklets were collected from the students.

1.16 STATISTICAL TECHNIQUES USED

The role of statistics in research is to function as a tool in designing research, analyzing its data and drawing conclusions. In the present study, the data was analysed by using descriptive statistics (mean and standard deviation-SD). In addition to the descriptive Statistics three-way analysis of variance (ANOVA) with 2×2×2 Factorial Design was computed using SPSS version 20.0 to study the main and interaction effect of the variables i.e. method of teaching, locality, gender and intelligence on achievement in Social Science of seventh graders supplemented by ‘t’ test wherever F-value was found to be significant. The Hartley’s Test of Homogeneity of Variance was also used to test the assumption of homogeneity of variance before applying Three-Way ANOVA with 2×2×2 Factorial Design.

1.17 FINDINGS OF THE STUDY

The main findings of the study are given below:

1.17.1 FINDINGS RELATED TO ANALYSIS OF OPINIONS OF TEACHERS TOWARDS THE EFFECTIVENESS OF SMART CLASSROOM TEACHING

A. Analysis of Opinions of Teachers for the Effectiveness of Smart Classroom Teaching with respect to Content Presentation

It is evident from the analysis of opinions of teachers for the effectiveness of smart classroom teaching with respect to content presentation that 82% of teachers are of the opinion that (i) the content of the teaching with smart classroom is as per syllabus prescribed by CBSE; (ii) language of the subject matter taught through smart classroom is according to the mental level of the students; (iii) the sound used in the smart classroom package is clearly audible
and the quality of audio is high; (iv) simple and relevant examples are used in the smart classroom teaching and (v) multimedia effects used in the smart classroom increase students’ concentration. The findings further revealed that 8% of teachers have unfavourable opinions and 10% of teachers remained undecided about effectiveness of smart classroom teaching with respect to content presentation.

B. Analysis of Opinions of Teachers for the Effectiveness of Smart Classroom Teaching with respect to Utility for the Students

It can be concluded from the analysis of opinions of teachers for the effectiveness of smart classroom teaching with respect to utility for the students that 77.71% of teachers have favourable opinions about the effectiveness of smart classroom teaching with respect to utility for students and believe that (i) smart classroom teaching makes all the confusion and questions clear in the lesson to the students; (ii) smart classroom teaching is very helpful for the slow learners; (iii) smart classroom learning improves the quality of education than traditional learning; (iv) smart classroom teaching presents information more effectively than the traditional presentation; (v) students’ achievement is highly affected by the usage of smart classroom package in teaching; (vi) smart classroom teaching gives the students freedom to express themselves and (vii) smart classrooms encourage students to participate in learning. The results further concluded that 8.71% of teachers have unfavourable opinions and 13.57% of teachers remained undecided about effectiveness of smart classroom teaching with respect to utility for students.

C. Analysis of Opinions of Teachers towards the Effectiveness of Smart Classroom Teaching with respect to Utility for Teachers

Analysis of opinions of teachers towards the effectiveness of smart classroom teaching with respect to utility for teachers concluded that 80.87% of teachers have favourable opinion about the effectiveness of smart classroom teaching with respect to utility for teachers and believe that (i) smart classrooms teaching saves time and energy of teachers; (ii) with smart classroom teaching, teachers can efficiently manage their classrooms and deliver lessons; (iii) smart classroom teaching support the interaction between teacher and students during a lesson; (iv) smart classroom teaching reduces the efforts of the teacher smart classroom presents information more effectively than the traditional presentation; (v) smart classroom teaching replaces traditional teaching method of using blackboards; (vi) smart classroom teaching makes teachers more comfortable during teaching (vii) teachers feel happy while
teaching through smart classroom package and (viii) smart classes are very helpful for professional development among teachers. The findings further revealed that 6.62% of teachers have unfavourable opinion and 12.5% of teachers remained undecided about effectiveness of smart classroom package with respect to utility for teachers.

D. Analysis of Overall Opinions of Teachers for the Effectiveness of Smart Classroom Teaching with respect to Content Presentation, Utility for Students and Utility for Teachers

As far as overall opinion of teachers are concerned, it can be concluded that 80.19% of teachers have favourable opinion towards smart classroom teaching with respect to presentation of the content, utility for the students and utility for the teachers. It can also be inferred from the results that 7.78% of teachers were found having non-favourable opinion towards smart classroom teaching and 12.02% of teachers remained undecided about the effectiveness of smart classroom teaching.

1.17.2 FINDINGS RELATED TO EFFECT OF METHOD OF TEACHING, LOCALITY AND GENDER ON ACHIEVEMENT IN SOCIAL SCIENCE

A. Main Effect of Method of Teaching, Locality and Gender on Achievement in Social Science among Seventh Graders

- A significant effect of method of teaching was found on the achievement in Social Science among seventh graders.
- It can be concluded from the results that locality has a significant effect on achievement in Social Science among seventh graders.
- The results of the study revealed that gender have a significant effect on achievement in Social Science among seventh graders.

B. Double Interaction Effect of Method of Teaching, Locality and Gender on Achievement in Social Science among Seventh Graders

Method of Teaching and Locality (A×B)

F-ration for the interaction effect of method of teaching and locality on achievement has been found to be significant at 0.05 level only which means that these two variables i.e. method of teaching and locality interact with each other with respect to achievement in Social Science among seventh graders. The result of t-test further revealed that:
Urban school students taught through smart classroom teaching had higher achievement in Social Science than that of urban school students taught through conventional teaching.

Rural school students taught through smart classroom teaching were found to have higher achievement in Social Science than that of rural school students taught through conventional teaching.

It was concluded from the results of the study that the mean scores of achievement of urban school students taught through smart classroom teaching (20.35) and rural school students taught through conventional teaching (17.23) differ significantly.

The results further indicated that ‘t’-value of 0.89 has not been found to be significant which means rural school students taught through smart classroom teaching and urban school students taught through conventional teaching do not differ significantly with respect to achievement in Social Science.

Urban school students taught through smart classroom teaching were found to have slightly higher achievement in Social Science than rural school students taught through smart classroom teaching.

On the comparison of mean scores, it was found that urban and rural school students taught through conventional teaching differ significantly in relation to their achievement in Social Science.

**Method of Teaching and Gender (A×C)**

It is evident from the results of the study, that F-ratio .900 for the interaction effect of method of teaching and gender has not been found to be significant which means there exists no significant interaction of method of teaching and gender on achievement in Social Science among seventh graders.

**Locality and Gender (B×C)**

The results of the study revealed that the F-ratio 7.166 for the interaction effect of locality and gender on achievement in Social Science has been found significant at 0.01 level leading to the inference that there exists a significant interaction effect of locality and gender on achievement in Social Science among seventh graders. The result of t-test further revealed that:

- It can be concluded from the results that ‘t’ value 1.81 for the interaction effect of locality and gender on achievement for the group $B_1C_1$ vs $B_2C_1$ i.e. male students of
urban schools and rural schools has not been found significant leading to the conclusion that these students do not differ with respect to their achievement in Social Science.

- Female students of urban schools were found to have higher achievement than that of female students of rural schools.
- There existed no significant difference between male students of urban schools and female students of rural schools in relation to their achievement in Social Science.
- On the comparison of mean scores, female students of urban schools were found to have higher mean achievement scores than male students of rural schools.
- Male students of urban schools were found to have significant lower achievement scores than female students of urban schools.
- No significant difference was observed between male and female students of rural schools with respect to achievement in Social Science.

C. **Triple Interaction Effect of Method of Teaching, Locality and Gender on Achievement in Social Science among Seventh Graders**

**Method of Teaching × Locality × Gender (A×B×C)**

F-ratio .275 for the triple interaction effect of method of teaching, locality and gender on achievement in Social Science has not been found significant leading to the conclusion that there existed no significant interaction effect of method of teaching, locality and gender was found on achievement in Social Science among seventh graders.

### 1.17.3 FINDINGS RELATED TO EFFECT OF METHOD OF TEACHING, GENDER AND INTELLIGENCE ON ACHIEVEMENT IN SOCIAL SCIENCE

**A. Main Effect of Method of Teaching, Gender and Intelligence on Achievement in Social Science among Seventh Graders**

- A significant main effect of method of teaching was reported on achievement in Social Science among seventh graders.
- No significant effect of gender was found on achievement in Social Science among seventh graders.
- It was revealed that intelligence had a significant effect on achievement in Social Science among seventh graders.

**B. Double Interaction Effect of Method of Teaching, Gender and Intelligence on Achievement in Social Science among Seventh Graders**
Method of Teaching and Gender (A×C)

The study revealed that F-ratio 6.541 for interaction between method of teaching and gender was found significant which leads to the conclusion that method of teaching and gender significantly interact with each other with respect to achievement in Social Science. The result of t-test further revealed that:

- Male students taught through smart classroom teaching and conventional teaching differ significantly with respect to achievement in Social Science and the former had higher achievement than the later one.
- In the context of mean scores, female students taught through smart classroom teaching were found to have higher achievement in Social Science than that of female students taught through conventional teaching.
- Male students taught through smart classroom teaching showed significantly higher achievement in Social Science than that of female students taught through conventional teaching.
- Female students taught through smart classroom teaching were found to have significantly higher achievement in Social Science than male students taught through conventional teaching.
- It was found that male and female students taught smart classroom teaching differ slightly with respect to their achievement in Social Science.
- No significant difference was observed between male and female students taught conventional teaching with respect to achievement in Social Science.

Method of Teaching and Intelligence (A×D)

The results of the study (F-ratio .023) revealed that method of teaching and intelligence were not found to have a significant interaction effect on achievement in Social Science among seventh graders.

Gender and Intelligence (C×D)

A significant interaction effect of gender and intelligence was reported on achievement in Social Science among seventh graders. The results of further investigations showed that:

- No significant difference was observed between male and female students having high level of intelligence in relation to their achievement in Social Science.
A significant difference was found in achievement of male and female students having low level of intelligence. In the context of mean score, male students having low level of intelligence were found better than their counterparts.

It was concluded that male students having high level of intelligence possessed significantly higher achievement in Social Science than that of female students having low level of intelligence.

Female students having high level of intelligence showed significantly higher achievement in Social Science than that of male students having low level of intelligence.

It is evident from the results of the study, that there was no significant difference between male students having high level of intelligence and low level of intelligence with respect to achievement in Social Science.

On comparison of mean scores, it was found that female students having high level of intelligence possessed significantly higher mean achievement scores than that of female students having low level of intelligence.

C. **Triple Interaction Effect of Method of Teaching, Gender and Intelligence on Achievement in Social Science among Seventh Graders**

There was found a significant interaction effect of method of teaching, gender and intelligence on achievement in Social Science among seventh graders. The following conclusions were drawn further by using t-test:

There was found a significant difference in the mean achievement scores of male students having high level of intelligence taught through smart classroom teaching and the female students having low level of intelligence taught through conventional teaching.

A significant difference was reported in achievement between male students having low level of intelligence taught through smart classroom teaching and female students having high level of intelligence taught through conventional teaching.

Female students having high level of intelligence taught through smart classroom teaching had higher achievement in Social Science than that of male students having high level of intelligence taught through conventional teaching.

The study revealed that female students having high level of intelligence taught through smart classroom teaching were found to have significant higher achievement in Social
Science than male students having low level of intelligence taught through conventional teaching.

- It was further inferred that there was no significant difference in achievement between male students having high level of intelligence taught through smart classroom teaching and female students having high level of intelligence taught through smart classroom.
- No significant difference was found between male and female students having high level of intelligence taught through smart classroom teaching with respect to achievement in Social Science.

- The results of the study revealed that male students having high level of intelligence taught through smart classroom teaching had significantly higher achievement in Social Science than that of female students having low level of intelligence taught through smart classroom teaching.
- There was found no significant difference in achievement between male students having low level of intelligence taught through smart classroom teaching and female students having high level of intelligence taught through smart classroom teaching.

- Male students having low level of intelligence taught through smart classroom teaching were found to have higher achievement in Social Science than their female counterparts.
- On comparison of mean scores, it was found that female students having low level of intelligence taught through conventional teaching had slightly lower achievement in Social Science than female students having high level of intelligence taught through conventional teaching.

- No significant difference was found in achievement between female students having low level of intelligence taught through conventional teaching and male students having low level of intelligence taught through conventional teaching.
- Female students having low level of intelligence taught through conventional teaching were found to have slightly lower achievement in Social Science than male students having high level of intelligence taught through conventional teaching.

- It was found that female students having high level of intelligence taught through conventional teaching had significantly higher achievement in Social Science than that of male students having low level of intelligence taught through conventional teaching.

- There was found no significant difference in achievement between male and female students having high level of intelligence taught through conventional teaching.
A significant difference was found in achievement between male students having high level of intelligence taught through smart classroom teaching and conventional teaching. It was further found that the former had significantly higher achievement than that of later one.

Male students having high level of intelligence taught through smart classroom teaching had significantly higher achievement in Social Science than male students having low level of intelligence taught through conventional teaching.

There was found a significant difference in achievement between male students having high level of intelligence taught through smart classroom teaching and female students having high level of intelligence taught through conventional teaching.

The study revealed a significant difference in achievement between male students having low level of intelligence taught through smart classroom teaching and male students having high level of intelligence taught through conventional teaching.

Male students having low level of intelligence taught through smart classroom teaching had significantly higher achievement in Social Science than male students having low level of intelligence taught through conventional teaching.

It was found that male students having low level of intelligence taught through smart classroom teaching were found to have higher achievement in Social Science than female students having low level of intelligence taught through conventional teaching.

Female students having high level of intelligence taught through smart classroom teaching had significantly higher achievement in Social Science than female students having low level of intelligence taught through smart classroom teaching.

A significant difference was reported in achievement between female students having high level of intelligence taught through smart classroom teaching and male students having high level of intelligence taught through conventional teaching.

Female students having high level of intelligence taught through smart classroom teaching had higher achievement in Social Science than female students having high level of intelligence taught through conventional teaching.

It was concluded that female students having high level of intelligence taught through smart classroom teaching were found to have significantly higher achievement in Social Science than female students having low level of intelligence taught through conventional teaching.
The results of the study revealed a significant difference in achievement between female students having low level of intelligence taught through smart classroom teaching and male students having low level of intelligence taught through conventional teaching. In the context of mean scores, the former group was found to have slightly higher achievement in Social Science than that of later one.

There was found no significant difference between female students having high level of intelligence taught through conventional teaching and female students having low level of intelligence taught through smart classroom teaching with respect to achievement in Social Science.

No significant difference was also found in achievement between female students having low level of intelligence taught through smart classroom teaching and conventional teaching. It was further revealed that female students having low level of intelligence taught through smart classroom teaching had higher achievement than their counterparts.

There was found a significant difference in achievement between male students having high and low level of intelligence taught through conventional teaching. In the context of mean scores, it was found that male students having high level of intelligence taught through conventional teaching had significantly higher achievement in Social Science than that of male students having low level of intelligence taught through conventional teaching.

1.17.4 FINDINGS RELATED TO EFFECT OF METHOD OF TEACHING, LOCALITY AND INTELLIGENCE ON ACHIEVEMENT IN SOCIAL SCIENCE

A. Main Effect of Method of Teaching, Locality and Intelligence on Achievement in Social Science among Seventh Graders

Method of teaching was found to have a significant effect on achievement in Social Science among seventh graders.

The results of the study revealed that locality had no significant effect on achievement in Social Science among seventh graders.

Intelligence was found to have a significant effect on achievement in Social Science among seventh graders.

B. Double Interaction Effect of Method of Teaching, Locality and Intelligence on Achievement in Social Science among Seventh Graders
Method of Teaching and Locality (A×B)

Method of teaching and locality were found to have a significant interaction effect on achievement in Social Science among seventh graders. The result of t-test further revealed that:

- The study revealed that urban school students taught through smart classroom teaching had higher achievement in Social Science than that of urban school students taught through conventional teaching.
- Rural school students taught through smart classroom teaching were found to have slightly higher achievement in Social Science than that of rural school students taught through conventional teaching.
- It was revealed that urban school students taught through smart classroom teaching and rural school students taught through conventional teaching differ significantly with respect to achievement in Social Science. In the context of mean scores, it was found that the former had significantly higher achievement mean scores than that of the later one.
- The results further indicated that rural school students taught through smart classroom teaching and urban school students taught through conventional teaching differ slightly with respect to achievement in Social Science.
- In the context of mean scores it was found that urban school students taught through smart classroom teaching were found to have slightly higher achievement in Social Science than rural school students taught through smart classroom teaching.
- The study revealed that t-value 1.61 was found insignificant leading to the conclusion that urban and rural school students taught through conventional teaching do not differ with respect to achievement in Social Science.

Locality and Intelligence (B×D)

No significant interaction effect of locality and intelligence was observed on the achievement in Social Science among seventh graders.

Method of Teaching and Intelligence (A×D)

The results of the study revealed that F-ratio 1.623 for interaction effect of method of teaching and intelligence on achievement in Social Science was found insignificant which leads to the inference that method of teaching and intelligence do not interact with each other with respect to achievement in Social Science among seventh graders.
C. Triple Interaction Effect of Method of Teaching, Locality and Intelligence on Achievement in Social Science among Seventh Graders

Method of Teaching × Locality × Intelligence (A×B×D)

There was found a significant interaction effect of method of teaching, locality and intelligence on achievement in Social Science among seventh graders. On applying t-test, the following conclusions were drawn:

- Urban school students having high level of intelligence taught through smart classroom teaching reported significantly higher achievement in Social Science than rural school students having low level of intelligence taught through conventional teaching.
- No significant difference was observed in achievement between urban school students having low level of intelligence taught through smart classroom teaching and rural school students having high level of intelligence taught through conventional teaching.
- The study revealed that rural school students having high level of intelligence taught through smart classroom teaching and urban school students having high level of intelligence taught through conventional teaching differ slightly with respect to achievement in Social Science.
- Rural school students having high level of intelligence taught through smart classroom teaching were found to have higher achievement in Social Science than urban school students having low level of intelligence taught through conventional teaching.
- From the mean scores, it was inferred that urban school students having high level of intelligence taught through smart classroom teaching had slightly higher achievement than that of urban school students having low level of intelligence taught through smart classroom teaching.
- Urban and rural school students having high level of intelligence taught through smart classroom teaching do not differ significantly with respect to achievement in Social Science.
- It was found that urban school students having high level of intelligence taught through smart classroom teaching had significantly higher achievement in Social Science than that of rural school students having low level of intelligence taught through smart classroom teaching.
- ‘t’-value 2.37 for the mean achievement scores of urban school students having low level of intelligence taught through smart classroom teaching and rural school students having
high level of intelligence taught through smart classroom teaching was found to be significant at 0.05 level only which leads to the conclusion that these two groups differ slightly with respect to achievement in Social Science.

- Urban school students having low level of intelligence taught through smart classroom teaching were found to have higher achievement in Social Science than rural school students having low level of intelligence taught through smart classroom teaching.

- In the context of mean scores, it was found that rural school students having low level of intelligence taught through conventional teaching had significantly lower achievement in Social Science than rural school students having high level of intelligence taught through conventional teaching.

- Rural school students having low level of intelligence taught through conventional teaching were found to have higher achievement in Social Science than urban school students having low level of intelligence taught through conventional teaching.

- The study further revealed that rural school students having low level of intelligence taught through conventional teaching had lower achievement in Social Science than that of urban school students having high level of intelligence taught through conventional teaching.

- On comparison of mean scores, rural school students having high level of intelligence taught through conventional teaching were found to have significantly higher achievement in Social Science than that of urban school students having low level of intelligence taught through conventional teaching.

- No significant difference was found in achievement between rural school students having high level of intelligence taught through conventional teaching and urban school students having high level of intelligence taught through conventional teaching.

- It was reported that urban school students having high level of intelligence taught through smart classroom teaching possessed slightly higher achievement than urban school students having high level of intelligence taught through conventional teaching.

- Urban school students having high level of intelligence taught through smart classroom teaching had significantly higher achievement in Social Science than urban school students having low level of intelligence taught through conventional teaching.

- In the context of mean scores, it was found that urban school students having high level of intelligence taught through smart classroom teaching had significantly higher
achievement than that of rural school students having high level of intelligence taught through conventional teaching.

- No significant difference was reported in achievement of urban school students having low level of intelligence taught through smart classroom teaching and urban school students having high level of intelligence taught through conventional teaching.

- It was found that urban school students having low level of intelligence taught through smart classroom teaching and conventional teaching differ significantly with respect to achievement in Social Science.

- Urban school students having low level of intelligence taught through smart classroom teaching had significantly higher achievement than rural school students having low level of intelligence taught through conventional teaching.

- The study further revealed that rural school students having high and low level of intelligence taught through smart classroom teaching differ significantly with respect to achievement in Social Science.

- Difference between achievement of rural school students having high level of intelligence taught through smart classroom teaching and urban school students having high level of intelligence taught through conventional teaching was found significant at 0.05 level only.

- A significant difference was found in achievement of rural school students having high level of intelligence taught through smart classroom teaching and rural school students having high level of intelligence taught through conventional teaching. In the context of mean scores, the former was found to have higher achievement in Social Science than the later one.

- Rural school students having high level of intelligence taught through smart classroom teaching were found to have significantly higher achievement in Social Science than that of rural school students having low level of intelligence taught through conventional teaching.

- ‘t’-value 4.35 for the mean achievement scores of rural school students having low level of intelligence taught through smart classroom teaching and urban school students having low level of intelligence taught through conventional teaching was found significant at 0.01 level. On the comparison of mean scores, it was found that the later had significantly lower achievement than the former one.
It was reported that rural school students having low level of intelligence taught through smart classroom teaching had lower achievement in Social Science than that of rural school students having high level of intelligence taught through conventional teaching.

No significant difference was found between rural school students having low level of intelligence taught through smart classroom teaching and rural school students having low level of intelligence taught through conventional teaching.

It was further revealed that there was a significant difference in achievement of urban school students having high and low level of intelligence taught through conventional teaching. In the context of mean scores, it was further revealed that urban school students having high level of intelligence taught through conventional teaching had significantly higher achievement than urban school students having low level of intelligence taught through conventional teaching.

1.18 CONCLUSIONS

Writing conclusion is the most important part of a good research as it helps compile the study in a single thread for understanding the results easily. The present study investigated the main and interaction effects of method of teaching (smart classroom teaching and conventional teaching), locality, gender and intelligence on achievement in Social Science among seventh graders. On the very onset, the opinions of teachers towards effectiveness of smart classroom teaching were analyzed. It was evident from the analysis of opinions of teachers for the effectiveness of smart classroom teaching that 80.19% of teachers have favourable opinions towards smart classroom teaching with respect to content presentation, utility for the students and utility for the teachers. It can also be inferred from the results that 7.78% of teachers were found having non-favourable opinions towards the effectiveness of smart classroom teaching and 12.02% of teachers remained undecided about the effectiveness of smart classroom teaching.

On exploring the main and interaction effect of method of teaching, locality and gender on achievement, it was found that all the three variables i.e. method of teaching, locality and gender had a significant main effect on achievement in Social Science among seventh graders. The double interaction effect of method of teaching and locality; locality and gender was found significant whereas the double interaction effect of method of teaching and gender was found insignificant. Furthermore, the triple interaction effect of method of teaching, locality and gender was not found to be significant on achievement in Social Science among
seventh graders. Further exploration revealed that the main effect of method of teaching and intelligence was found significant on achievement in Social Science whereas the main effect of gender on achievement was not found to be significant. Double interaction effect of method of teaching and gender; gender and intelligence was found significant whereas double interaction effect of method of teaching and intelligence was found insignificant on achievement in Social Science among seventh graders. Triple interaction effect of method of teaching, gender and intelligence was found significant on achievement in Social Science among seventh graders.

The main and interaction effect of method of teaching, locality and intelligence on achievement in Social Science among seventh graders was examined in the last section. The findings revealed significant main effect of method of teaching and intelligence on achievement in Social Science among seventh graders. It was further revealed that locality didn’t have significant effect on achievement in Social Science among seventh graders. On further exploring, the double interaction effect of method of teaching and locality was found significant whereas double interaction effect of locality and intelligence; method of teaching and intelligence was not found to be significant on achievement in Social Science among seventh graders. Further, triple interaction effect of independent variables i.e. method of teaching, locality and intelligence was found significant on achievement in Social Science among seventh graders.

1.19 EDUCATIONAL IMPLICATIONS

Technology has affected all spheres of life. The education is also one of the fields where we can see the impact of information technology. Over several years the education process has seen drastic changes in imparting knowledge. During the last few years it has been seen, an almost exponential development and growth of the digitalization, automation and the internet, with little sign of a slowdown. No longer is internet access restricted to a few select education establishments it is now available to anyone in their place of work, local libraries, the internet sites and even in the home. It is the information that has becomes the key to the success in different walks of life. The use of Information and Communication Technology (ICT) will enhance the quality learning process (Voogt and Pelgrum, 2005). Therefore, teachers should create an atmosphere conducive to learning in order to enhance the development of students’ learning experiences. Moreover, teachers should also increase their
knowledge of various instructional strategies in order to keep students engaged and motivated throughout the learning process. The present study shows that smart classroom teaching significantly improves the achievement of students. It implies that smart classroom teaching proves to be more tangible in its effectiveness on achievement than conventional teaching or traditional classroom teaching. The present study has a wide range of implementation in the field of education. Some of the implications of the present study are as follows:

**For Students:** The results of the present study reflect that method of teaching has a significant great effect on students’ achievement in Social Science. Smart classroom teaching proved to be better mode of teaching than the conventional teaching in all the content areas i.e. Social Sciences, Chemistry, Biology, and Mathematics etc. Smart classroom teaching is an effective way of teaching. It is entirely different from the old way of teaching by writing on black board. Here the projectors or screens are raised where the students can visualize and learn almost everything. They get a chance to see the experiments, incidents etc., they can hear, see and learn through smart class teaching. It is an interesting method of learning and the students get a chance to escape from the boredom of sleepy classes. Students get benefited from interactive method of teaching than the traditional or conventional teaching. Thus technological approach of emerging technology of smart class teaching will fulfil the gaps in students’ knowledge, understanding, and application.

**For Teachers:** Teachers play a very important role during teaching - learning process and always trying to acquire cent percent learning. It is very difficult task for a teacher to take care of each and every student and impossible for a teacher to teach every individual according to their own pace of learning. Teaching is becoming one of the most challenging professions in our society where knowledge is expanding rapidly and modern technologies are demanding teachers to learn how to use these technologies in their teaching. Therefore, teachers should know how to integrate information technology with teaching. To make teaching interesting and fruitful they should make use of technology i.e. computer, interactive whiteboard, internet, projector etc. with possibly latest software in the classroom.

**For Administrators:** The present study reveals that smart classroom teaching is far better than conventional teaching. The students perform better, when they are taught in a classroom which is equipped with technologically enhanced tools. So the present study recommends
that the administrators should allow enough flexibility for teachers to make decisions regarding the use of technology in the classroom. The principals and managing directors or other higher authorities need to use technology and support the teachers who hesitate about using technology in teaching learning process. Refresher courses, workshops and seminars etc. on the integration of technology in teaching learning must be organised for the professional development of teachers.

1.20 SUGGESTIONS FOR FURTHER RESEARCH

Every research lays down the foundation for a new study. So, no research is complete in itself. Due to limited time and resources, the researcher delimited his research and was unable to deal with all the aspects of the problem taken under consideration. The present study was delimited in terms of area of study, type of school i.e. CBSE affiliated English medium schools only and grade level at elementary level only. Therefore, a few suggestions for further researches based on the experiences of the present study are given below:

- The present study was conducted on a sample of 430 seventh graders. The study could be extended to a larger sample.
- The present study was carried out in only one district namely Jhajjar of Haryana state. Further, the study could be extended to other districts of Haryana state.
- The present study was delimited to elementary level only. Further, the study could be extended to different grades of educational institutes i.e. secondary, senior secondary or even at the college level and universities level also.
- The present study was conducted on a sample of students belonging to CBSE affiliated schools only. It may be replicated on sample of students studying the schools affiliated to other boards like ICSE Board, Haryana Board of School Education, UP Board, MP Board and other state boards.
- In the present study, achievement in Social Science only has been taken. Further, achievement in other subjects like Science, Mathematics etc. may be taken under consideration.
- Demographic variables viz. locality, gender, and intelligence have been taken up in the present study. The other demographic variables such as academic stream, self confidence, socio-economic status etc can also be taken up.

The suggestions which have been mentioned above are not exhaustive but illustrative. There are vast areas in this field which have not been explored so far and any attempt in this
direction may both be rewarding and instructive. If the present study is able to provide thinking in this direction, the efforts of the researcher would be amply rewarded.