

**Chapter 6 -  
Research Summary**

## Chapter 6

### Research Summary

#### 6.1 Introduction

Science and Technology has made tremendous progress in the field of communication, transportation, information technology, infrastructure and has transformed the world into a virtual “Global Village”, where the physical distance means practically nothing. Things are still changing very fast. Human expectations and ambitions have also grown manifold now. This changing environment has impacted every aspect of our life including education system. The roles of teachers and students are also changing as education is becoming more student-centric where teachers are largely working as facilitator and guide. While Constructivism as a learning philosophy is evolving, it is gaining ground.

#### 6.2 Need and Significance of the Study

Social Science is a compulsory subject in both the Primary and Secondary stages of school education. It is included keeping in mind the significant role it plays in helping learners in understanding and developing a broad perspective of the environment he/she lives in. This plays a crucial role in helping students to grow as well informed and responsible future citizens who would be able to contribute meaningfully to the nation and the world at large (CBSE, 2019-2020).

Social Science is akin to an umbrella that has underneath quite a few other subjects like history, geography, political science, economics, etc. Goal of teaching Social Science is to develop children as worthy future citizen of the country and the society they live in. Social Science enables the learners to participate and contribute meaningfully to the society as well as create healthy relationships with one another. It helps them to understand the socio-political-economic-cultural fabric of the environment Social Science is taught in schools with a view to develop analytical and conceptual skills in students to enable them to become proficient in social understanding, civic competence, critical thinking, integrating ideas and inculcating basic human values.

Unfortunately, Social Science education has remained largely teacher-centric and simple transmission of information by the teachers and emphasis on rote memorization. Students, parents and others perceive it to be a non-core, non- utility subject that offers limited job opportunities. All these make Social Science the least interesting subject. Despite its importance, the subject is languishing. All out efforts are needed to create a respectable place for Social Science not only in the curriculum, but also in the education system and society.

Constructivism is an emerging learning philosophy that postulates that learners can learn better by constructing meaning by themselves based on their previous knowledge and experience. Here, the focus of the learning process shifts from being teacher-centric to student-centric. Teacher becomes a facilitator, moderator, collaborator and guide. Learning and acquiring new knowledge through constructivism is more valuable than that comes through traditional teacher-centric method. Further, the retention of knowledge tends to be much more. The constructivist theory encourages students to learn through practicing, problem solving and decision-making activities. Construction of meaning, self-reflections, group learning can make the subject interesting. To establish Social Science a subject of choice and to realize its full potential, constructivist teaching-learning method can take a lead role. It has a lot of scope for developing critical thinking ability of the learners.

As a teacher of Social Science for 30 years, the Researcher thought that implementation of constructivist approach in Social Science at school level would bring positive impact on the teaching-learning process. In view of this, the present study was undertaken in expectation that it would improve Social Science teaching-learning process through improved participation, comprehension, thinking ability, analytical ability and academic performance of the students and it would make the subject interesting to the students.

### **6.3 Review of Related Literature**

John Dewey, Jerome S Bruner, Jean W F Piaget and Lev S Vygotsky are the major philosophers and proponents of the Constructivism theory which has been extensively researched over the last few decades.

The study of Brown (1999) concluded that the fundamental purpose of Social Studies was to educate on how to become effective citizen. Hoagland (2000) advocated that applying constructivist concepts to the teaching of Social Studies can revolutionize the learning environment. Basic tenets of constructivism are that people learn best when knowledge is constructed by them based on their prior knowledge and experience. According to Edigar (2000), Social Studies need to use a variety of methods to assist each pupil to achieve as optimally as possible. Doolittle et al (2003) stated that teachers must become facilitators of knowledge, not conduits. Another role of teacher is

knowledge exploration as they redirect the focus and rationale of the lesson. Collaborative activities (Rice et al, 1999), group activities (Brooks et al, 1993) help students to critically analyze the issues and help to develop higher level thinking skills. Tay (2013) proposed alternate assessment methods like self, peer and group evaluation, performance-based evaluation, rating scale, etc. instead of traditional assessment approach.

### **Studies related to Teaching-learning Principles/Methods**

Caine et al developed 12 Brain/Mind learning principles like advocating engagement in social interaction, ensuring emotional connect, etc. Karaduman, et al (2007), Barr et al (1978) said that Social Science functions as an umbrella that interconnects other disciplines and helps to develop understanding on political and economic development of the world. Yanpar (2001) observed that Social Science learning is through memorization while Fontana (1996) found that constructivist approach enables students to learn through problem solving and decision making. Similarly, Garcia et al found people learn by constructing their knowledge by themselves. Li (2012) proposed various models of learning - inquiry-based, problem-based, collaborative etc.

### **Studies related to Learning Styles & Study Habits**

Stewart et al (1992) said that most of the models of learning styles include Auditory, Kinesthetic and Visual – while David Kolb (1984) specified his model of learning styles as divergers, convergers, accommodation and assimilation. Csapo et al (2006) found that predominant learning style is auditory. Felder-Silverman (1988) provided Learning Styles dimensions that impacted learning of concepts.

### **Studies related to Emotional Intelligence and Social Intelligence**

Goleman (2005), Cohen (2014), Thorndike (1920), Stricker et al (1990), Toor (2013) have conducted various studies on Emotional and Social Intelligence. According to Goleman, Emotional Intelligence is the ability to manage emotions and inner potentials for positive relationships. According to Albrecht (2006), Social Intelligence is the ability to get along well with others and get their cooperation. Ramana (2013) found that emotional competence is necessary for effectiveness and quality teaching-learning processes.

### **Studies related to Multiple Intelligence**

Gardner (1983, 1999) identified nine (9) unique intelligences through which individuals learn and teach new information. They are verbal-linguistic, logical-mathematical,

music, visual-spatial, bodily-kinesthetic, interpersonal, naturalistic and existential intelligences. Xie et al (2009) said that Multiple Intelligence could provide with more options in learning and assessment methods. Multiple Intelligence needs to be used judiciously since each student is different and they have their own preferred way of learning.

### **Studies related to Technology in Constructivist Teaching**

Many Social Studies educators like Berson et al (2001), Braun et al (1999), Hope (1996), Martorella (1997) and others have advocated use of technology in Constructivist teaching. Berson et al (2001), Braun et al (1999), Scott et al (2000) proposed use of internet technologies in Constructivist teaching of Social Studies. Other researchers like Jonassen et al (1999), Black et al (1995), Brush et al (2000), Collins (1991), Duffy et al (1996), Richards (1998) have suggested positive impact of use of technologies in constructivist teaching. Bell (2001) proposed the need of teachers training on technology. Saye et al (1999) said that Social Studies classroom are supposed to be problem-centred multimedia-supported learning environment. Jha studied how Information and Communication Technology (ICT) plays a role in constructing knowledge and improve learning in the higher education.

### **Studies related to Constructivist Teaching of Various Subjects**

During 2005-2017, quite a few Studies have been conducted on constructivist teaching of various subjects. Mostly, experimental method was adopted where two groups – experimental and control groups were formed. Constructivist approach was administered to the experimental group while traditional method was used for the control group. Pre-test and post-test were conducted, and the scores were analysed. Kim (2005) found that students of Mathematics liked the constructivist classroom environment. However, the method was not found to be effective in self-concept enhancement but had some positive effort on motivation. Mishra (2014), Srinivasalu (2013), Chackko (2012), Parasurama (2016) carried out constructivist teaching for Social Science and experienced positive impact of the constructivist method. Adak (2017), Akanwa et al (2014), Tandel (2012), Secken et al (2011), Singh et al (2015), Barman et al (2015), Qarareh (2016) carried out Constructivist teaching for Sciences. All found constructivist teaching method significantly more effective. Fathima (2015) and Satyaprakasha et al (2014) found positive impact of constructivist teaching. Khalid (2012) and Rajendran (2012) found positive impact of constructivist approach on teacher education. Petitt (2008), Owusu (2015), Roy Chowdhury (2016)

got good impact of constructivist teaching of Mathematics subject. Singh et al (2015) also experienced the positive effects of the 5E model (Engage, Explore, Explain, Elaborate and Evaluate), proposed by Bybee (2009) in developing and implementing constructivist teaching of Science. Study of Masek et al (2010) suggests that creativity is potentially to be fostered through constructivist perspective and problem-based learning is a powerful tool for the same.

#### **Studies related to 5E Learning Model**

Bybee (2009) formally developed the model. Subsequently, many educators/researchers like Yadigar et al (2012), Cardak et al (2008) and others experienced positive impact of the model in teaching-learning process.

It is found that while constructivist teaching has a possibility of positively impacting the teaching-learning process; many more researches are still required, especially on teaching of Social Science in secondary school considering the critical importance of the subject and the ground reality. Outcome of the researches conducted in the area of teaching-learning of Social Science is encouraging. However, some literature pointed out the negative side of constructivist approach – breadth of coverage of content has been found to be less at times due to time constraint. Answers to this will have to be found out.

#### **6.4 Rationale of the Study**

A detailed review of the topic and the various research studies done in this area bring to light the following major points:

The goal of education is to help students grow as human beings and become responsible and conscious citizens of the society. As per Indian Constitution, Right to Education is a fundamental right of every citizen and it calls for a very versatile, dynamic and flexible learning process that addresses the needs of all types of learners.

Social Science helps to understand the socio-political-economic-cultural environment and enables the learners to participate and contribute meaningfully to society and create healthy relationships with one another. Unfortunately, Social Science education has remained largely teacher-centric with undue emphasis on rote-memorization. This makes Social Science an uninteresting subject and does not give the students joy of learning the subject. It is considered a non-utility subject and is given less importance than the natural sciences. Despite being important for the society, the subject is languishing. Multi-prong approaches are needed to instill respectability of Social Science in the curriculum, education system and society. It is necessary to emphasize

that it provides the social, cultural, and analytical skills required for an increasingly interdependent world, and to deal with political and economic realities (NCF 2005). The importance of Social Science needs to be enhanced manifold as it prepares the future citizens of the society. Constructivism is an emerging learning philosophy that postulates that learners are better able to learn by constructing meaning by themselves based on their previous knowledge and experiences. Thus, the learning process shifts from being teacher-centric to student-centric and where teacher becomes a facilitator, moderator, collaborator and guide. Students bring prior knowledge and experience into a learning situation. Such learning and acquisition of new knowledge through constructivism is more valuable compared to what comes unilaterally from the teacher. Further, knowledge retention tends to be more. The constructivist approach that encourages students to learn through active engagement, taking lead in the learning process, problem-solving and decision-making activities can be an appropriate methodology to teach Social Science. Construction of meaning, self-reflection and learning in group are expected to improve learning and performance of the students including enhancement of their critical thinking ability.

The 5E Model was adopted as the 5 steps Engage-Explore-Explain-Elaborate-Evaluate attend to the various learning theories and learning styles which have been researched extensively and found to be important in the learning process. Each stage has its own contribution to the learning process and gives students ample opportunity for construction of knowledge by active participation in each stage in accordance with his individual learning style and intelligences. Thus, the method was found to be most suitable for individual and collaborative learning.

As a teacher of Social Science for 30 years, the Researcher found it to be a great opportunity to take up this challenging task of implementing constructivist teaching approach in Social Science in school level and assess its effectiveness. The Researcher undertook design, development and implementation of Lessons based on constructivist approach (5E Model) for the ninth standard Social Science English medium students of CBSE curriculum to assess effectiveness of the constructivist approach through students' academic achievement after undergoing this experience. This study also sought to obtain students' reactions towards this new methodology of teaching-learning process. The Researcher chose standard IX for her experiment as it is the commencement of the Secondary Section when new subjects are introduced and thus,

the teaching methodology assumes greater importance to help students in its understanding and retention of knowledge. The Researcher selected the first three chapters of the Social Science subject as these lessons were scheduled to be taught in the school during the time the Researcher performed the experimental study. The Researcher did not want to disturb school schedule by selecting other topics.

Thus, the present study seeks to throw light on the existing practices in Social Science teaching and via the findings that emerge, provide direction to make the subject more meaningful.

## **6.5 Research Questions**

The following research questions were designed for the Study:

1. Whether Constructivist methodologies of teaching Social Science can be designed that promote interest and knowledge retention in students?
2. How can a Constructivist Classroom be created for Social Science of CBSE English medium Standard IX students effectively that enhances academic performance?
3. What are the reactions of the students towards such methodologies?

In order to find answers to these research questions, the researcher undertook the Study titled, *A Study of the Effectiveness of Constructivist Approach in the Teaching of Social Science at CBSE English Medium Secondary School Level.*

## **6.6 Objectives of the Study**

1. To design Lessons based on Constructivist approach (5E Model) in Social Science for Standard IX CBSE English medium students.
2. To implement the Lessons based on Constructivist approach in Social Science for Standard IX CBSE English Medium students.
3. To study the effectiveness of the approach:
  - by comparing Mean Achievement Scores of Experimental and Control groups of students in Social Science in Post Test 1
  - by comparing Mean Achievement Scores of Experimental and Control groups of students in Social Science in Post Test 2
  - by comparing Mean Achievement Scores of Experimental and Control groups of students in Social Science in Post Test 3
  - by comparing Mean Achievement Scores of Experimental and Control groups in Comprehensive Post-Test.



4. To study the effectiveness of the Constructivist approach in terms of the reactions of students.

## **6.7 Hypothesis**

(H01): There will be no significant difference in the Mean Achievement Scores of the Experimental and Control Group students in Social Science in Post-Test 1.

(H02): There will be no significant difference in the Mean Achievement Scores of the Experimental and Control Group students in Social Science in Post-Test 2.

(H03): There will be no significant difference in the Mean Achievement Scores of the Experimental and Control Group students in Social Science in Post-Test 3

(H04): There will be no significant difference in the Mean Achievement Scores of the Experimental and Control Group students in Social Science in Comprehensive Post-Test.

## **6.8 Explanation of Terms**

### **Constructivist Approach (5E Model)**

It refers to the student-centric teaching-learning process wherein students learn by reflecting on their previous knowledge and experience leading to construction of new understanding. 5E entails Engage, Explore, Explain, Elaborate and Evaluate.

### **Lesson Plan**

Lesson Plan (LP) in the present Study, refers to the instruction designed and developed by the researcher based on constructivist principles for teaching Social Science for Std. IX, CBSE, English Medium students. The Lessons have been developed based on the concept of 5E (i.e. Engage, Explore, Explain, Elaborate & Evaluate) proposed by Bybee (2009).

### **Traditional Approach**

It refers to conventional teacher-centric teaching-learning process where teacher teaches the class and has the total control of the teaching as well as the class. Students are passive recipient of knowledge.

### **Experimental Group**

It refers to the group of students who were taught through Constructivist approach by the Researcher.

### **Control Group**

It refers to the group of students who were taught through Traditional approach by another teacher.

## **6.9 Operational Definition of Terms**

### **Effectiveness**

Effectiveness, in this study, refers to:

- Increase in the Mean Achievement Scores of the Experimental Group students when compared to those of the Control Group students;
- Positive reactions of the Experimental Group students towards the effectiveness of teaching conducted through Lesson Plans (LP) developed based on 5E Constructivist teaching approach.

## **6.10 Delimitation of the Study**

The present study is delimited to:

- The Standard IX CBSE Social Science students with English as medium of instruction in Vadodara City, of academic year 2016-17.
- Ten (10) Lesson Plans covering three (3) lessons of Social Science of Standard IX of CBSE curricula.

## **6.11 Methodology of the Study**

This Study was designed to assess the effectiveness of the Constructivist approach through (5E) on student understanding of Social Science.

The Study adopted is a quasi-experimental design; 2 groups – Control and Experimental were identified to study the effectiveness of the intervention i.e. Lesson Plans (LP) designed on the 5E Model. The treatment by the Researcher was confined to one group - Experimental group, while the Control group studied the same course content via the traditional approach by another teacher.

The collected data was analyzed using suitable statistical techniques e.g. 2-sample independent t-Test and MANCOVA. Reaction feedback, as collected from the Experimental Group in Likert Scale (1 to 5) was also analyzed. This Chapter also discusses the various issues related to the Study and provides suggestions to the various stakeholders of the Social Science education system like the policy makers, teachers, school management and the prospective Social Science research students.

## **Variables of the Study**

### **Independent Variables**

- Teaching of Social Science Standard IX-C CBSE English medium students of School 1, designated as the Experimental Group, through the 5E method based on the Constructivist approach.
- Teaching of Social Science of Standard IX-A CBSE English medium students of School 1, designated as Control Group, through Traditional approach.

### **Dependent Variable**

- Mean Achievement Scores obtained by the students of the Experimental and Control Groups in the Post-Tests 1, 2, & 3 and Comprehensive Post-Test
- Reaction feedbacks of the Experimental Group students on the effectiveness of the Constructivist teaching

The Researcher verified the effectiveness of the constructivist approach-based teaching methodology in Social Science by comparing the Mean Achievement Scores of the students taught with Constructivist approach vis-à-vis scores of students taught with traditional approach.

### **Population of the Study**

All Standard IX students of CBSE English medium Secondary schools of Vadodara City, Gujarat, Academic Year 2016-17, following the CBSE Syllabus was the target population of the present Study.

### **Sample of the Study**

The total number of CBSE schools in Vadodara city was identified to be around 12. However, the selection of the 2 schools for the Study had to be done purposively being the only 2 schools that agreed to support the research endeavour and permit the implementation of the Constructivist approach on its students.

Thus two (2) English medium Senior Secondary schools of Vadodara City, Gujarat, academic year 2016-17, following the CBSE Syllabus were selected purposively – one, for carrying out the Pilot Study and the other, for implementation of the Constructivist teaching via 5E model.

Two sections from this school - Standard IX-A and IX-C were randomly selected as Control Group and Experimental Group respectively. Both Experimental and Control Group had 33 students each.

It was not feasible for the researcher to go for random assignment of students to both groups; thus, whilst groups were randomly assigned as Experimental and Control groups, the students within the groups could not be done so.

Achievement tests were prepared by the researcher for Pre-Test, Post-Test 1, Post-Test 2, Post-Test 3 and Comprehensive Post-Test with knowledge, understanding, application and high order thinking skill items.

The Pre-Test was conducted before the intervention to compare both the groups with respect to their Social Science knowledge of the previous academic year.

The Post-Tests were prepared based on the content taught during the intervention.

**Observation:**

Observation of student participation and responses in the various stages of the 5E model of teaching was important source of data to gauge whether students were able to make the required connections between the present, past and future. Thus, the learning tasks assigned had to ensure active engagement (mental and physical) of each student. The next stage 'Exploration' was equally crucial wherein the researcher designed activities that allowed students to go to the next level and investigate – in this phase it was important to assess how students were investigating and arriving at conclusions by observing patterns, seeing connections and recognizing new situations, technologies and procedures. The stage of 'Explanation' revealed their ability to explain their concepts with clarity and good communication skills. Not only this; their ability for negotiation, interpretation, collaborative learning and the ability to convey ideas via other media too was being observed. Having understood the concept the, students should be able to extend and apply this knowledge to other situations and observation helped the researcher to gauge how well students were able to transfer their learning. While observation of the earlier phases helped the researcher to evaluate the 'process' aspects, the final phase of 'Evaluation' helped the researcher to evaluate the 'learning outcomes.' Thus, observation helped the researcher to evaluate student learning towards achieving the pre-determined educational objectives.

**Reaction Scale:**

This was designed by the researcher to capture students' reactions on the effectiveness of the Constructivist teaching.

**Data Analysis**

Statistical techniques e.g. Mean, Standard Deviation, 2 Sample independent t-Test and Multiple Analysis of Covariance (MANCOVA) were employed for carrying out the data analysis.

The Pre-Test scores for both Control and Experimental Groups were analyzed by using the 2 Sample independent t-Test.

The Post-Tests scores were analyzed using the MANCOVA.

The Reaction Scale was analyzed through frequency of responses and mean.

**Development and Validation of Tools:**

Validation of all the 10 Lesson Plans, Scholastic Achievement Test papers for the Pre-Tests, Post-Tests 1, 2, 3 and Comprehensive Post-Test developed by the Researcher were validated by the Experts (Subject and Language) as listed in Appendix 6.

Likewise, the Reaction Scale developed by the Researcher for obtaining students' feedback reaction on the Constructivist teaching approach was also validated by the Experts.

**Phases Adopted for the Study**

Phase 1: Design and Development of Lesson Plans (LP) and Reaction Scale  
Questionnaire

Phase 2: Pilot Study and Feedback

Phase 3: Formation of Experimental and Control Groups

Phase 4: Administration of Pre-Test

Phase 5: Implementation of the Lesson Plans (LP)

Phase 6: Administration of Post-Tests 1, 2, 3 and Comprehensive Post-Tests

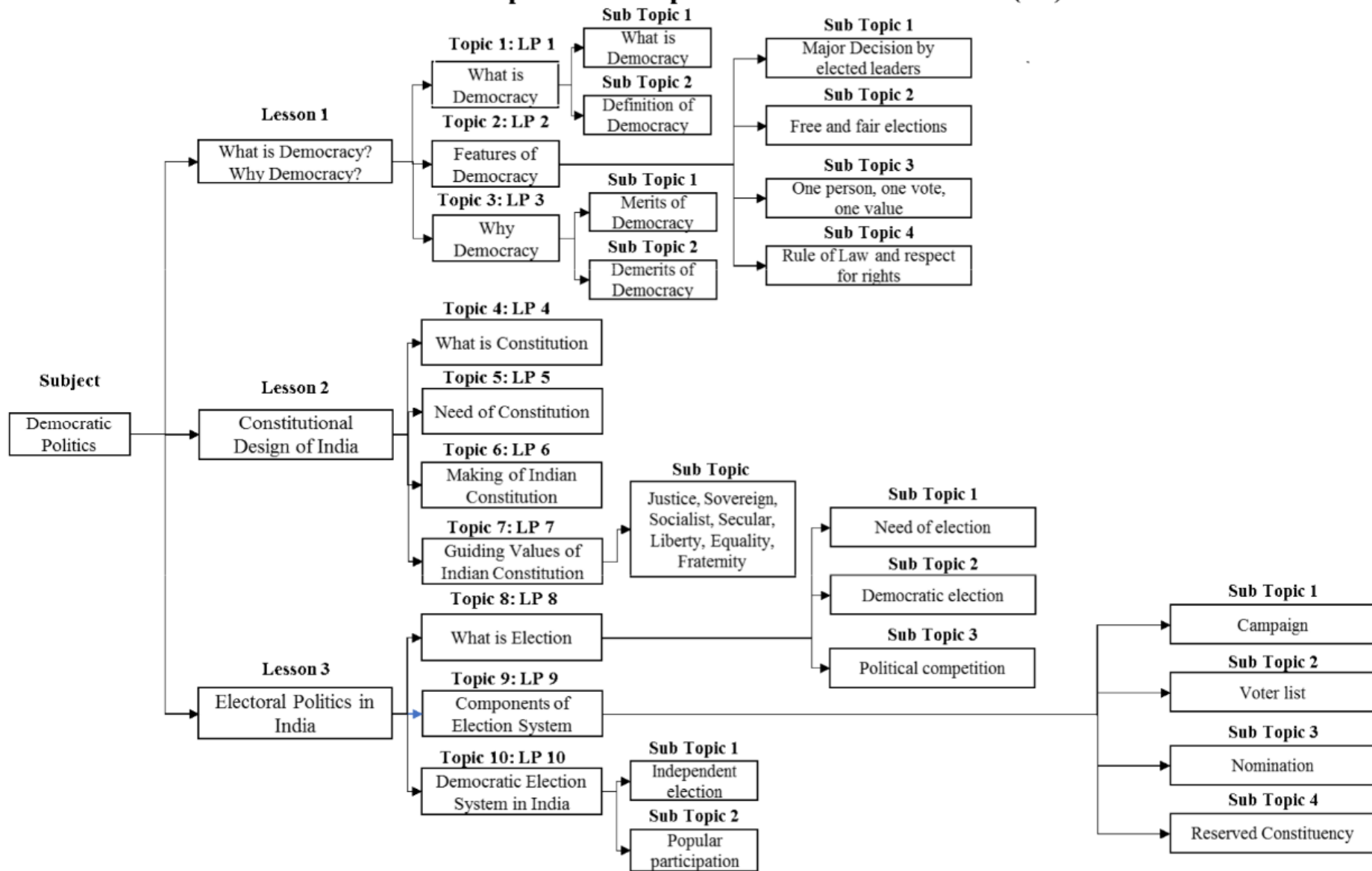
Phase 7: Assessment and Consolidation of Test Scores

Phase 8: Administration of Reaction Feedback Scale and Collection of Students' Reactions

Fig 6.1 given hereinafter gives the Master Plan for Development and Implementation of Lesson Plans (LP).

Figure 6.1

**Master Plan for Development and Implementation of Lesson Plans (LP)**



## **6.12 Major Findings of the Study**

### **Major Findings from the analysis of Section 1:**

The Mean Achievement Scores obtained by the Experimental Group (13.12) was significantly higher than that of the Control Group (12.03). The p-Value is less than 0.05 (actual value: 0.002). Thus, Mean Scores achieved by the Experimental Group is significantly higher than that of the Control Group. Hence, it may be construed that the intervention used based on the Constructivist teaching approach for Lesson 1 was found to be effective for Social Science Standard IX CBSE English medium students.

### **Major Findings from the analysis of Section 2:**

Mean Scores achieved by the Experimental Group (13.71) was significantly higher than that of the Control Group (11.67). The p-Value is less than 0.05 (actual value: 0.000). In other words, Mean Scores achieved by the Experimental Group is significantly higher than that of the Control Group. Thus, it can be concluded that the intervention based on the Constructivist teaching approach for Lesson 2 was found to be effective for Social Science of Standard IX CBSE English Medium students.

### **Major Findings from the analysis of Section 3:**

Based on the Mean Score obtained by the two groups in Post-Test 3 - Experimental group (11.09) and Control group (11.17), it was found that there was no significant difference between the two groups. The p-Value is more than 0.05 (actual value: 0.900). In other words, the intervention used based on the Constructivist teaching approach for Lesson 3 for Social Science of Standard IX CBSE English Medium students did not have much differential effect on the results of the Experimental Group.

### **Major Findings from the analysis of Section 4:**

Mean Achievement Scores achieved by the Experimental Group (12.85) was significantly higher than that of the Control Group (11.22). The p-value is less than 0.05 (actual value: 0.004). In other words, scores achieved by the Experimental Group was significantly higher than that of the Control Group implying that the intervention based on the Constructivist approach was indeed beneficial in the understanding of Social Science concepts.

### **Major Findings from the analysis of Section 5:**

- Observation of student participation and responses in the various stages of the 5E model of teaching showed that students were able to make the required connections between the present, past and future.

- In the ‘Exploration’ stage, students were found to be investigating and arriving at conclusions by observing patterns, seeing connections and recognizing new situations, technologies and procedures.
- The stage of ‘Explanation’ revealed their ability to explain their concepts with clarity and good communication skills. Not only this; their ability for negotiation, interpretation, collaborative learning and the ability to convey ideas via other media too had improved.
- In the stage of Elaboration, students were able to extend and apply their knowledge to other situations and were able to transfer their learning.
- While observation of the earlier phases helped the researcher to evaluate the ‘process’ aspects, the final phase of ‘Evaluation’ helped the researcher to evaluate the ‘learning outcomes’ which showed that students’ understanding of Social Science concepts was found to be better in comparison with the control group students.

### **Major Findings from the analysis of Section 6:**

The major reactions of the students are summarized as below:

#### **Introduction**

- 81.8% students “Strongly Agreed” and 9.1% students “Agreed” that Social Science teaching has been teacher centric.
- 66.7% students “Strongly Agreed” and 30.3% “Agreed” that the way SS was taught can make the subject interesting.

#### **Stage I: Engage**

- 54.5% students “Strongly Agreed” and 45.5% students “Agreed” that learning through Group Discussion was fun and enjoyable.
- 33.3% students “Strongly Agreed” and 42.4% students “Agreed” that they liked this method as it connected to their past knowledge.
- 63.6% students “Strongly Agreed” and 36.4% students “Agreed” that teacher offered effective support and guidance.
- 48.5% students “Strongly Agreed” and another 48% “Agreed” that the questions posed by the teacher forced them to think independently.

#### **Stage II: Explore**

- 57.6% students “Strongly Agreed” and 42.4% students “Agreed” that it was interesting to learn through group activities and project making.



- 57.6% students “Strongly Agreed” and 42.4% students “Agreed” that this method has helped them to organize their concepts of Social Science.
- 39.4% students “Strongly Agreed” and 60.6% students “Agreed” that this method has them to develop Analytical skill.

**Stage III: Explain**

- 18,2% students “Strongly Agreed” and 81.2% students “Agreed” that this teaching method was student centric.
- 48.5% students “Strongly Agreed” and another 48.5% students “Agreed” that they could listen and question ideas.
- 48.5% students “Strongly Agreed and 42.4% “Agreed” that they could learn at their own pace.
- 69.7% students “Strongly Agreed” and the remaining 30.3% students “Agreed” that this teaching method made them more confident.
- 57.6% students “Strongly Agreed” and remaining 42.4% students “Agreed” that they were encouraged to explain in their own words.
- 36.4% students “Strongly Agreed” and 54.5% students “Agreed” that it was clear what they were expected to learn after completing each unit of Social Science.
- 42.4% students “Strongly Agreed” and 57.6% students “Agreed” that working in a team made learning more interesting and effective.

**Stage IV: Elaborate**

- 45.5% students “Strongly Agree” and 54.5% students “Agreed” that this method of teaching created a conducive environment of learning.
- 57.6% students “Strongly Agreed” and 42.4% students “Agreed” that this approach helped them to apply what they have learned to new situations.
- 42.4% students “Strongly Agreed” and 51.5% students “Agreed” that they liked this method as it explored their creativity in studying SS in class.

**Stage V: Evaluate**

- 39.4% students “Strongly Agreed” and 60.6% students “Agreed” that evaluation was simple because concepts were clear.
- 39.4% students “Strongly Agreed” and 54.5% students “Agreed” that retention of SS knowledge has improved.
- 57.6% students “Strongly Agreed” and the remaining 42.4% students “Agreed” that they, overall, liked the method and its outcome.

### **6.13 Discussion**

Students found the teaching, based on Constructivist teaching philosophy, to be very effective in terms of connecting to their previous knowledge and experience while constructing new knowledge. This has been reflected in the results of the study, especially in Post-Test 1, Post-Test 2 and Comprehensive Post-Test. In each of these tests, students of Experimental Group have scored significantly higher compared to the students of Control Group.

While most of the students were interactive during the group activities, a few of them were a bit hesitant initially to speak up. But, with the support of the group and the Researcher, they became participative. Students worked in a group as they felt comfortable. In today's changing and interconnected world, collaborative or group working is a very powerful tool to address any challenge. Result of the study suggests that if there is an effective leader or guide or a facilitator, collaborative working could be very effective and efficient.

The above positive findings match with those conducted in this field by various researchers. There have been several studies conducted in the area of Social Science. Chackko (2012) studied the 'Effectiveness of Constructivist Approach in Teaching of Social Studies at Upper Primary Level'. The Constructivist approach was found to be effective in critical thinking. Mishra (2014) in his Study titled 'Social Constructivism and teaching of Social Science', concluded that learners' engagement and ownership in classroom pedagogic process, culture of enquiry had significantly improved, students were able to defend their ideas and authority had shifted from teacher to students, the whole class benefited from collective learning. According to Akanwa et al (2014), Srinivasalu, (2013) constructivist approach had a significant effect on achievement and interest of students in the Social Sciences.

This study corroborates the findings with the studies conducted earlier. Quantitative analysis proves the superiority of the Experimental Group students in academic achievement through the Post-Tests 1, 2 and Comprehensive Post-Test. Reaction feedbacks of the Experimental group students have also revealed positive impacts of the constructivist teaching on the teaching-learning process. More than 80% students

strongly liked the student-centric teaching while more than 40% strongly agreed that they could connect previous knowledge to the present ones. 46% students strongly agreed that this teaching methodology could create a very conducive learning environment. About 50% students strongly agreed that they could learn at their own pace. 55% students strongly agreed that learning through group discussion was easy to comprehend, fun and enjoyable. More than 40% students strongly agreed working in a team made the learning more effective. Around 40% students strongly agreed that their retention of Social Science knowledge improved. While about 70% students strongly agreed that their confidence level had improved, around 40% students strongly agreed that this method helped to improve their analytical skills. This Study found that Questions posed by teacher forced students to think independently – nearly 50% students strongly agreed with the statement. Nearly, 70% students expressed that constructivist method of teaching can make Social Science an interesting subject. On the whole, about 60% students strongly liked the method and its outcome.

Though on the face of it, it might appear that the Lesson Plans (LP) for Lesson 3 were not effective based on scores in Post-Test 3, it points out to the complex ground realities that, at times, the environment may not be ideal for conducting such studies. It could happen due to several reasons. Students' interest on a specific topic may vary significantly. For example, Lesson 3 was about Electoral System in India. This topic has become a very interesting topic to one and all, including children, thanks to media, e.g. TV, Newspaper, etc. Students, irrespective of whether they belong to Experimental or Control Group, they are very much interested in this topic. This study, being a quasi-experimental study, was conducted in real life situation that may not provide a 100% ideal condition for such study. Many other environmental and physical factors, stress level of students, varying energy level of the teacher, etc. can have impact on the outcome. In fact, such aberrations make the study realistic, authentic and support the overall findings of the study. In this context, it may be worthwhile to recall the study of Kim (2005), entitled 'Effects of a Constructivist Teaching Approach on Students' of Mathematics, in elementary school in Korea. While constructivist teaching was found to be more effective in terms of academic achievement of the students, it was not effective in terms of concept enhancement, but had some effect on motivation to learn. Thus, the outcome of the experiment may not always match fully with what was expected. Another important aspect is that Social Science is not an exact science, it is influenced by many socio-political, academic, influence, subjectivity and other factors.

Thus, in order to establish generic characteristics of constructivist teaching method and its benefits, it is essential to conduct many more research studies in Social Science.

It had been a huge learning for the Researcher. Fundamental shift in the approach – from totally teacher-centric and teacher-controlled environment to a student-centric environment initially made the Researcher a bit apprehensive about the outcome. It was a mixed feeling of excitement of embarking on a new approach and an air of uncertainty of the students' reactions played in the mind of the Researcher.

This study confirmed that Constructivist approach enables students to learn through problem solving, group learning and independent decision making. They learn by constructing their own knowledge via meaningful facilitation and guidance of the teacher. Findings of some other studies mentioned in the report also experienced positive impact of Constructivist approach. While Constructivist teaching has a possibility of improving the teaching-learning process, as mentioned earlier, many more researches are required, especially on teaching of Social Science in Secondary School considering the critical importance of the subject and the ground realities.

The qualitative analysis of the data related to the reactions of students towards the methods used, classroom environment, evaluation and role of teacher in the Constructivist approach found to suggest that all students hugely liked the Constructivist approach in their learning process. Overall, the study carried out shows that the Constructivism as pedagogy or as an approach to learning was effective in improving learning of the students. The effectiveness of the Constructivist approach is due to the students' active participation during the learning process. Learning occurred by doing, exploring and constructing. This helps students to retain knowledge for a longer time. It is apparent that the Constructivist approach has contributed to the successful outcome.

#### **6.14 Suggestions to Various Stakeholders**

Constructivist thinking-teaching-learning philosophy has been gaining ground in the recent past. The present study also showed that Constructivism as a pedagogy or as an approach to learning is effective in improving learning outcome of the students. Researcher's conclusion is that Social Science subject can be made interesting by teaching through Constructivist approach. To make Constructivist method of teaching Social Science more impactful, following suggestions are being made to the various stakeholders involved in the education system.

## **1. Policy Makers**

NCERT has recommended use of Constructivist method of teaching-learning methods and textbooks are undergoing changes to make them more student-friendly. Constructivist approach may be introduced into the curriculum at all levels of Secondary education to enhance the purpose and quality of education. Policy makers may set up a detailed plan of implementation of this learning philosophy including development of pedagogy, textbooks, work assignments, technologies to be used, method of assessment, training of teachers and staff with a definite timeline. Guidelines for a robust pre-service and in- service Social Science teacher training program needs to be developed along with a policy framework and mechanism to monitor as how the schools are implementing it.

## **2. Teachers**

If the quality of education needs to improve, it needs to begin with the improved quality of teachers' education. Shift from teacher-centric to student-centric classroom poses a huge challenge to any teacher irrespective of his/her length of experience. The very thought that the absolute and unilateral control the teachers were enjoying on the class and students would go away in a student-centric classroom can unnerve any teacher. Moreover, the student-centric approach, flow of discussion can lead to an unstructured and unknown territory. Teacher must have the tact, skills, courage and presence of mind to steer it back on the track.

Teachers should be self-motivated to develop innovative and newer knowledge, use of technology and skills to make the teaching-learning of Social Science interesting, effective and meaningful, by engaging the students in the class. Continuous competency building needs to be the motto of the teachers. They must continuously strive to be aware of the emerging trends and practices in the field of Social Science education.

## **3. School Management**

While teachers will have to take initiatives and interest for their own development, School Management must take proactive actions towards this objective. Schools must ensure that each Social Science teacher goes through a 2-3 days training cycle twice a

year. School should take care of the expenses and grant leave to the teachers for this purpose. School Management should monitor the progress of the teachers to make them more knowledgeable, skilled and versatile. Both CBSE Board and School Management should take interest in it. In addition, School Management should encourage and arrange teacher exchange program wherever possible, with overseas educational institutions of developed countries. This will provide great opportunities to the teachers in acquiring knowledge of the foreign education system and newer methods of teaching practiced in developed countries. Last, but not the least, school should take initiative to apprise the parents, guardians and other related stakeholders on the job opportunities that Social Science discipline offers, through yearly seminars/workshops.

#### **4. Research Students**

It is slowly but steadily emerging that Constructivist approach of teaching-learning is gaining grounds in various disciplines including Social Science. Few research studies including this one bear testimony to that. However, it is needless mention that a good number of studies are necessary in use of Constructivist approach in Social Science to review various aspects of this philosophy and come out cause-effect and other nuances of it. In view of this, Social Science research students are encouraged to take up research studies on application of Constructivist approach in teaching Social Science. Good quality researches have always enriched the discipline and will continue to do so, in future, as well.

#### **6.15 Suggested Future Studies**

- Development of Lessons based on the Constructivist approach for all the lessons of Social Science covered under the syllabus of CBSE Standard IX English Medium.
- Development of Lessons based on the Constructivist approach for all the lessons of Social Science covered under the syllabus of CBSE Standard X English Medium.
- Development of Lessons based on the Constructivist approach for other subjects in Primary and Secondary Grades of CBSE English Medium.
- A qualitative study can be taken up to observe and analyze student learning in the different stages of the 5E Model.