CHAPTER 6

RESULT AND CONCLUSIONS

This chapter contains the major finding of the study based on analysis and interpretation of the data, discussion of the results and most importantly the educational implementation. In the end of the chapter, suggestions for further studies are also given. The discussion, data analysis and their interpretation of the study in the previous chapter would naturally lead one towards a conclusive phase. But it is very difficult to summarize briefly the large amount of the data and facts dealing with Inquiry-based teaching model in the social science subject.

So it directs the researcher to conclude and discuss the major findings in short as far as possible. Through the discussions and major findings have been presented in short, yet it has been attempted to present the entire silent finding list it shouldn’t miss the charm of the major finding.

6.1 PRE-TEST ANALYSIS

To determine if the starting points (pre-tests) were the same for each group, the research scholar performed a pre-test scores for both groups (control & experimental) with the help of the Social Science Achievement Test (SSAT). The Social Science Achievement Test (SSAT) used for pre-test analysis has been shown in the Annexure G. The data sheets of pre-test analysis are shown in Annexure D. The differences between the means for pre-test attitude scores were not significantly different. The research scholar found no significant difference between means for pre-test scores for both groups. The academic record of both groups (Experimental & Control) is nearly equivalent. The Social Science Achievement Test (SSAT) used for post-test analysis has been shown in the Annexure H. The data sheets of post-test analysis are shown in Annexure E. The post-test analysis indicates that there is significant difference between the academic achievements of the
students taught by the Inquiry-based teaching model in the comparison of traditional teaching model.

6.2 MAJOR FINDINGS

In academic institutions, the students must be involved in the learning process so they are being managed in this way that they must show their interest in the classroom. The best way of involving the student in the classroom is to make them busy in asking the enquiries. With the help of the enquiries, they resolve their doubts and learn more.

In the illumination of the interpretation, the result of the present study as already, following major finding are given: It has following research hypothesis as given below:

1) There is significance difference between the academic achievements of 9th class students in social science taught by Inquiry-based teaching model and traditional teaching model.

2) There is significance difference between the academic achievements of 9th class urban students & rural students in social science taught by Inquiry-based teaching model.

3) There is significance difference between the academic achievements of 9th class urban student & rural students in social science taught by traditional teaching model.

4) There is significance difference between the academic achievements of 9th class urban boys and urban girls’ students studying the social science taught by Inquiry-based teaching model.

5) There is significance difference between the academic achievements of 9th class urban boys and urban girls’ students studying the social science taught by traditional teaching model.

6) There is significance difference between the academic achievements of 9th class rural boys and rural girls’ students in social science taught by Inquiry-based teaching model.

7) There is significance difference between the academic achievements of 9th class rural boys and rural girls’ students in social science taught by traditional teaching model.

8) There is significance difference between the academic achievements of 9th class
urban girl & rural girl students in social science taught by Inquiry-based teaching model.

9) There is significance difference between the academic achievements of 9th class urban girl & rural girl students in social science taught by traditional teaching model.

10) There is significance difference between the academic achievements of 9th class urban boy students in social science taught by Inquiry-based teaching model & Traditional teaching model.

11) There is significance difference between the academic achievements of 9th class rural boy students in social science taught by Inquiry-based teaching model and traditional teaching model.

12) There is significance difference between the academic achievements of 9th class urban girl students in social science taught by Inquiry-based teaching model and traditional teaching model.

13) There is significance difference between the academic achievements of 9th class rural girl students in social science taught by Inquiry-based teaching model & traditional teaching model.

Given the limitations of traditional achievement tests, more direct measurement methods have been utilized to screen for academic skills deficits and monitor intervention effects. Several methods are available to achieve these purposes, including curriculum-based measurement, direct observations of classroom behavior, and calculation of product completion and accuracy rates.

These behavioral assessment techniques involve direct sampling of academic behavior and have demonstrated sensitivity to the presence of skills deficits and to treatment-induced change in such performance. The power of an inquiry-based approach to teaching and learning is its potential to increase intellectual engagement and foster deep understanding through the development of a hands-on, minds-on and ‘research-based disposition’ towards teaching and learning. Inquiry honors the complex, interconnected nature of knowledge construction, striving to provide opportunities for both teachers and students to collaboratively build, test and reflect on their learning.
The main purpose of this study is to explore the effects of inquiry-based high school social science course and gender differences on students’ understanding of atom concept, learning approaches, motivational goals, self-efficacy, and epistemological beliefs.

In this study, before the treatment the experimental and control group students were examined in order to their school success. It was found that there is no statistical difference between experimental group and control group students. Then the Social Studies Academic Achievement Test was administered to all subjects after the treatment to compare the effects of two different teaching methods (TTM vs. ITM) on students’ understanding of Social sciences concepts. Inquiry oriented instruction has a significantly higher post-test mean scores on the Academic Achievement Test than the traditionally designed social science instruction group after applying inquiry-based teaching method. The difference between learning activities provided in inquiry oriented instruction and traditionally designed methods may cause to difference in achievement of students in both groups. The inquiry-oriented instruction was designed to lead students from their prior knowledge to the scientific knowledge. On the other hand, the traditionally designed social science instruction followed the logical presentation of atom concept generally seen in textbooks on social science.

6.3 EDUCATIONAL IMPLICATIONS

Any research effort must have some bearing on the theory or practical of the discipline to which it belongs. The results of the present study have, therefore to be viewed from this angle as to how much they contribute to the existing knowledge. It should be admitted at very outset that being limited in scope and with some natural limitations a humble effort like the present one; one cannot have for reaching simplification to advise any revolutionary changes in its subject field. As the opening point, inquiry involves learners:

- tackling real-world questions, issues and controversies
- developing questioning, research and communication skills
- solving problems or creating solutions
- collaborating within and beyond the classroom
- developing deep understanding of content knowledge
- participating in the public creation and improvement of ideas and knowledge
Inquiry is an umbrella term that covers a number of other approaches to teaching and learning. Teaching practices that utilize a disposition of inquiry learning include:

1. problem-based learning: learning that starts with an ill-structured problem or case-study
2. project-based learning: students create a project or presentation as a demonstration of their understanding
3. design-based learning: learning through the working design of a solution to a complex problem

As contrasted with more traditional forms of teaching and learning, inquiry emphasizes the process of learning in order to develop deep understanding in students in addition to the intended acquisition of content knowledge and skills. Inquiry draws upon a constructivist learning theories where understanding is built through the active development of conceptual mental frameworks by the learner. This approach is supported and enhanced by base which has identified three key implications for effective instructional practices:

1. Students come to the classroom with preconceptions about the world. This means teaching practices must draw out and work with students preexisting understandings and make student ‘thinking’ visible and central to the learning.
2. Competence in an area of study requires factual knowledge organized around conceptual frameworks to facilitate knowledge retrieval and application. Classroom activities should be designed to develop understanding through in-depth study of curriculum topics.
3. Meta-cognition (thinking about thinking) helps students take control of their learning. Opportunities for students to define learning goals and monitor their own understanding need to be embedded into classroom tasks.

Every research activity has its own implementations with own implications with its relevant fields. The piece of research is not an exception from this. This research has its wider implications particularly in educational field, for students, teachers, principals and educational administrations and planners. So the educators need to take lead in the design, development and effective use of Inquiry-based Teaching model to improve the academic achievement of 9th class in the secondary school.
The result of the study leads support to above mentioned functionaries of educational fields to draw a demarcation line between urban & rural Sr. Sec. School and to frame policies and programs to improve academic achievement and add to the knowledge of the teacher and students how to improving their academic performance. The study also helps the teachers and learners to achieve information and make it instantly available when needed.

6.4 CONCLUSION

This work highlighted the impact of the inquiry-based teaching model on the academic achievement of 9th class student in Social science subject. The outcomes of this research work may be concluded in following facts as given below:

1. Inquiry-based teaching model cause the significance difference between the academic achievements of 9th class students in social science in comparison of traditional teaching model.

2. Inquiry-based teaching model causes significance difference between the academic achievements of 9th class urban students & rural students in social science.

3. The significance difference between the academic achievements of 9th class urban student & rural students has been observed in social science taught by traditional teaching model.

4. The significance difference between the academic achievements of 9th class urban boys and urban girls’ students has been observed the social science subject taught by Inquiry-based teaching model.

5. The significance difference between the academic achievements of 9th class urban boys and urban girls’ students has been observed the social science subject taught by traditional teaching model.

6. The significance difference between the academic achievements of 9th class rural boys and rural girls’ students has been observed the social science subject taught by Inquiry-based teaching model.

7. The significance difference between the academic achievements of 9th class rural boys and rural girls’ students has been observed the social science subject taught
by traditional teaching model

8. The significance difference between the academic achievements of 9th class urban girl & rural girl students has been observed the social science subject taught by Inquiry-based teaching model.

9. The significance difference between the academic achievements of 9th class urban girl & rural girl has been observed the social science subject taught by traditional teaching model.

10. Inquiry-based teaching model cause the significance difference between the academic achievements of 9th class urban boy students in social science in comparison of Traditional teaching model.

11. Inquiry-based teaching model cause the significance difference between the academic achievements of 9th class rural boy students in social science taught in comparison of Traditional teaching model.

12. Inquiry-based teaching model cause the significance difference between the academic achievements of 9th class urban girl students in social science taught in comparison of Traditional teaching model.

13. Inquiry-based teaching model cause the significance difference between the academic achievements of 9th class rural girl students in social science in comparison of Traditional teaching model.

Several factors limit definitive conclusions about the utility of the inquiry based on the present results. There are following observation as described as below:

- The sample of children studied was limited to an urban location in one geographic region; it is unknown how representative these normative data would be for children from rural or suburban settings as well as other regions. Previous research with similar teacher questionnaires would suggest significant differences in scores across urban and rural settings.

- For the norms to be generally applicable, inquiry-based teaching model would need to be collected for as ample representative of the general population with respect to ethnicity and socioeconomic status.

- A further limitation of the present study is the limited range of criterion measures employed. In particular, the relationship of Academic Achievement Test scores
with more direct measures of academic performance (e.g., criterion-based measurement) should be explored, as the weaknesses of norm-referenced achievement tests for this purpose are well documented.

- Finally, additional psychometric properties of this scale, such as predictive validity and inter-rater reliability, need to be documented. Empirical investigations are necessary to determine the usefulness of the Academic Achievement Test as a treatment-sensitive instrument. Evidence for the latter is especially important as a primary purpose for creating the Academic Achievement Test was to allow assessment of intervention effects on academic performance.

This study corroborates previous experiments that show that student-centered, inquiry-based teaching is more effective at increasing student scientific literacy. Students taught with an inquiry-based curriculum are better able to use scientific ways of thinking to answer questions. Students also show increased attitudes toward social science and a greater self-efficacy within the subject of social science when taught with inquiry-based methods.

A fuller, more complete picture of the effectiveness of inquiry-based teaching is reached when multiple surveys are used. There are interesting interactions that would have been missed if only one survey instrument is used. Perhaps an even fuller picture would be revealed if students also participated in a standardized pre- and post-test that focused on content knowledge. Part of the Academic Achievement Test standards for a scientifically literate individual include being familiar with the natural world and being able to use scientific knowledge, as well as, scientific thought. While this study assumed that being able to reason scientifically is a good measure of a scientifically literate individual, there are instructors that are reluctant to give up on expository teaching, as they believe they would be sacrificing content. More studies are emerging that show active learning, such as inquiry-based methodologies, leads to an improvement in students’ content achievement. Other studies have reported that students taught in cooperative learning groups did not appear to gain less content knowledge than students taught by direct lecture. If instructors can make deeper, more meaningful connections then it becomes easier for students to access that knowledge when asked. It is much harder to remember seemingly unrelated and disconnected facts.
As a personal anecdote, the research scholar was amazed at the students’ level of involvement and willingness to participate once they realized that this “new” teaching style was not threatening, and was inherently more interesting than “just taking notes.” Many students rose to the challenge of devising an experiment with the scientific or hypothetic deductive method. Once they were comfortable with the process, they found it logical and easy to accomplish. Obviously, this can be quickly undermined if an instructor peremptorily decides that the students won’t be successful and gives them the answer, whether on purpose or sub-consciously.

One of the largest obstacles for instructors to overcome is our own apprehension at letting students struggle for a while and to become frustrated. The teachers need to let students have set backs and struggles for them to learn that success comes with perseverance. This is the way that the student will gain self-efficacy within subject. It is very easy for an instructor to give away answers to students to help, or event keeps the students from becoming frustrated. However, this does not serve the students and only sets them up for future hardship. It seems to over-inflate their self-efficacy and attitude toward the subject, without giving them the knowledge or experience necessary to critically think within the subject. Given the chance, students will rise to the occasion and even surprise you with their own ingenuity. The reaction from the instructor must be to re-challenge the student, not simply give the answer. When most students understand that the instructor won’t just give them the answer, they try harder; they become more task-oriented.

Some instructors may question the importance of attitudes and self-efficacy in students. If the teacher can increase the scientific reasoning abilities of our students, isn’t that enough? Although improving only scientific reasoning appears to embody the goals of the Academic Achievement Test focusing in on this one measure may be shortsighted. While demonstrating that students are able to reason scientifically, the teacher may not be creating society that feels that they can effectively use scientific reasoning, or even care that they can. To create a scientifically literate society the scholar need to focus, not only on increasing scientific reasoning abilities, but also on students’ attitudes toward science.

### 6.5 RECOMMENDATIONS FOR FUTURE RESEARCH

There are many areas that may be more closely examined in future studies. This study did not elucidate differences in demographic data. The sample size of this study was too
small to examine possible effects of gender, educational background and ethnicity on these parameters. Many studies have looked at how differences in these demographic variables are impacted by inquiry-based teaching. These types of studies should also be extended to the community colleges. It would be interesting to give community college students, who score themselves low in self-efficacy, a series of self-efficacy post-tests throughout the semester to observe possible drops and rebounds in self-efficacy throughout the semester. This periodic self-efficacy testing would allow an examiner to map out the effect of challenges and obstacles to student self-efficacy.

This study was also limited in the number of students that were converted to inquiry-based classes. This study converted four cookbook labs to inquiry-based classes; some of the inquiry-based classes ran for several weeks. An interesting study could be to add additional inquiry-based labs one at a time. This would allow the examiner to determine if more inquiry-based labs, without inquiry-based lectures, would be as effective in positively affecting student attitudes, self-efficacy and scientific reasoning, as adding in inquiry-based lecture exercises. For instructors wary of adding inquiry-based lecture exercises, this type of study may be useful.

6.6 IMPLICATIONS OF THE STUDY

Because many schools are growing rapidly across the state, the implications of this study may be far reaching. These teachers may take their foremost and perhaps the social science course at these schools. The inquiry-based teaching model plays the important role in the academic achievement in the social science subject. The teaching models are very crucial during the classes. At this stage, the students are keen to know about the information and depth details of the subject should be delivered to the students during teaching. It is the base building stage of the students.

This study highlights the importance of the teaching models and drawbacks of the traditional teaching model, it also illustrate how these limitations can be overcome. Research at the senior secondary school is also significant, if the student body is immeasurably different than those found at other colleges and universities. Students at senior secondary school may be less motivated due to poorer attitudes, have lower self-efficacy and poorer scientific reasoning skills than other students. Since most senior secondary school are open-enrollment, the student body at these senior secondary school
may be quite different from those at more selective institutions. Because of this potential difference in student demographics, it is important to examine these differences and determine if inquiry-based teaching methods are proper or effective for these students. To be sure, senior secondary schools are becoming important in preparing, not only scientifically literate citizens, but also future teachers that can take inquiry-based teaching to the elementary schools. To that end, senior secondary school need to make sure that they collaborate in reforming and researching the best type of teaching methods needed for each type of student.

6.7 RECOMMENDATIONS

On the basis of the findings from this study, the researcher recommends that:

- A study can be conducted with different grade levels and different science courses.
- This present study can be conducted with a larger sample size from different schools in order to get more accurate results and to make a generalization for Turkish student population.
- Other instructional methods, which are problem solving, demonstration, concept map, etc., can be used.

6.8 FUTURE SCOPE

One of the outcomes of conducting any study should generally also be to generate avenues for future researchers or to point out the areas it opens for potential researched having accomplished this study, the researchers was in the position to be taught what improvement could be made, at what stage what could be more suitable. But this new insight gained in course of working on this study could not be utilized in this very study as it was not potential to revolutionize the strategies in mid of the course. Hence, it was thought appropriate to layout all these points as part of this research report so that potential researcher in this area may be promoted. Some suggestions are given as below for amplifying the future scope.

1. A related study can be carried out on larger sample or areas.
2. Scholar’s study is conducted only in Jind & Rohtak district. It may be extended to other district in India.
3. An analogous study can be undertaken on different socio-economic status group.
4. A dissimilar type of test can be used for the similar study.
5. It may be extended to any other physiological factors.

In conclusion, it is hoped that study may construct more useful follow-up work. The work also motivates the other scholars to use ICT tools with the inquiry-based teaching model through the projects and demonstration.