## CHAPTER - 6
### RESEARCH SUMMARY, FINDINGS, RECOMMENDATIONS

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CHAPTER – 6

RESEARCH SUMMARY, FINDINGS, RECOMMENDATIONS

6.0.0 Introduction:
The foundation of any research is in the objectives, data collection, analysis and findings. For the present research the researcher has found several findings in the context of the research objectives by using several research tools. In this chapter the findings and recommendations for the future research are given.

6.1.0 Research Summary:
The title of the present research was:

“Construction of Reasoning capsules and study of its effects on the students studying in Std. VIII”

6.1.1 Objectives:

1. To prepare capsules for developing reasoning ability.
2. To examine the effectiveness the prepared capsules experimentally to enhance the reasoning ability of the students of std 8th.
3. To examine the effect of reasoning capsules on enhancement of reasoning ability of the students in the context of different variables under investigation.

This objective was divided into sub objectives:

(i) To examine the effect of capsules on reasoning ability in the context of I.Q.
(ii) To examine the effect of capsules on reasoning ability in the context Parents Educational Level.
(iii) To examine the effect of capsules on reasoning ability in the context of Parents Yearly Income.
(iv) To examine the effect of capsules on reasoning ability in the context of Gender.
(v) To examine the effect of capsules on reasoning ability in the context of Area.
To examine the effect of capsules on reasoning ability in the context of Type of Institute.

4. To examine the effect of retention on the development of reasoning ability of the students in the context of the different variables under investigation.

This objective was divided into sub objectives:

(i) To examine the effect of retention on the development of reasoning ability in the context of I.Q.

(ii) To examine the effect of retention on the development of reasoning ability in the context of Parents Education Level.

(iii) To examine the effect of retention on the development of reasoning ability in the context of Parent Yearly Income.

(iv) To examine the effect of retention on the development of reasoning ability in the context of Gender.

(v) To examine the effect of retention on the development of reasoning ability in the context of Area.

(vi) To examine the effect of retention on the development of reasoning ability in the context of Type of Institute.

5. To examine the effect of Gender on the gain scores of the students.

6. To examine the effect of I.Q. level of students on the gain scores of the students.

7. To examine the effect of type of institute on the gain scores of the students.

8. To examine the effect of area on the gain scores of the students.

9. To examine the effect of parents educational level on the gain scores of the students.

10. To examine the effect of parents yearly income on the gain scores of the students.

The present research was limited to Gandhinagar district only in which Shantiniketan school of the city was selected purposively for the piloting. After that four schools were
selected purposively considering the independent variable for the main experiment. The details of which are as given below:

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the School</th>
<th>No. of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Smt. R. C. Secondary Higher Secondary School</td>
<td>96</td>
</tr>
<tr>
<td>2</td>
<td>Jayprakash school</td>
<td>41</td>
</tr>
<tr>
<td>3</td>
<td>Swaminarayandham</td>
<td>49</td>
</tr>
<tr>
<td>4</td>
<td>Vivekanand school</td>
<td>27</td>
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</table>

After the purposive selection, one class from each school was selected by picking up a chit. While form the each class selected the students were selected randomly as the participants of the experiment. In this way the experiment was conducted on 213 students of all the four schools selected. In the analysis also the scores of these 213 students in pre-test, post test and re-post test were decided to be considered.

In the present research the researcher has to study the effect of the independent variables on the logical ability of the students, and for this purpose to collect the required data, a pre-test was prepared on the basis of the logic included in the experiment. After this capsules were prepared on based on each type of logic. For a continuous development of logic in the capsules it was divided into different stages.

The questions were distributed stage wise in such a manner that the students may start thinking logically in sequence. The capsules were explained with proper planning to the student in the classroom in such a manner that they can reach to the proper solution of the problem. After applying the experiment the similar type of test as the pretest was given to the students as the post test. And to assess the retention a retention test was given to the student as a retention test after one month of applying the experiment.

To decide the intelligence quotient of the students, K. G. Desai’s Verbal – Non Verbal Test was used. To collect information regarding the annual income and educational qualification of the parents of the students’ information schedules were filled up.
To study the effect of participants' intelligence quotient, gender, area, parents' annual income and educational qualification and their school type on the participants' reasoning ability, after calculating mean and standard deviation, F test was used and on the basis of it the effect was assessed. In which assessment in the context of the effectiveness of experiment, effects of retention and assessment in the context of gained score was done.

6.2.0 Major Findings

➤ Findings related to the effectiveness of the experiment:

- The capsule prepared to develop the mathematical reasoning ability was found to be significantly effective at 01 level.
- In the context of the intelligence level the experiment was found to be effective on the participants having higher intelligence quotient and the participants having lower intelligence quotient at 01 level.
- Assessing the effectiveness of the experiment in the context of the area, it was found to be effective on the participants of rural and urban area at 01 level.
- Assessing the effectiveness of the experiment in the context of the educational level of the parents, the experiment was found to be effective on the parents having higher as well as lower educational level at 01 level.
- Assessing the effectiveness of the experiment in the context of the annual income of the parents, the experiment was found to be effective on the parents having higher as well as lower annual income at 01 level.
- Assessing the effectiveness of the experiment in the context of the type of school, the experiment was found to be effective on the participants studying in the self-finance as well as grant in aid schools at 01 level.
- Assessing the effectiveness of the experiment in the context of the gender, the experiment was found to be effective on both boys as well as girls at 01 level.

➤ Findings related to the effectiveness of the retention of the experiment:

- The effect on retention was not found to be significant on the experiment at 01 level which means that the increase in the reasoning ability of the students by the capsules prepared is durable.
• Assessing the effect of retention in the context of the intelligence level, the effect of retention was not found to be significant on the participants having higher as well as lower intelligence level at 01 level.

• The effect of the experiment was found upon the participants of the experiment having lower intelligence quotient.

• The effect of the experiment was found upon the male participants of the experiment.

• The effect of the experiment was found upon the female participants of the experiment.

• The effect of the experiment was found upon participants of the experiment of the rural area.

• The effect of the experiment was found upon participants of the experiment of the urban area.

• The effect of the experiment was found upon participants of the experiment of the self-finance institutes.

• The effect of the experiment was found upon participants of the experiment of the grant-in-aid institutes.

• The effect of the experiment was found upon participants of the experiment who have parents with higher educational qualification.

• The effect of the experiment was found upon participants of the experiment who have parents with lower educational qualification.

• The effect of the experiment was found upon participants of the experiment who have parents with higher annual income.

• The effect of the experiment was found upon participants of the experiment who have parents with lower annual income.

➤ Findings related to gained score of the experiment:

• The effect of the gained score is found to be effective in the context of intelligence level at 01 level, this means that the gained scores of the participants having higher level of intelligence are found to be higher.
The effect of the gained score is found to be effective in the context of urban area students at 01 level, this means that the gained scores of the participants from urban area are found to be higher.

The effect of the gained score is found to be effective in the context of self-finance institute students at 01 level, this means that the gained scores of the participants from self-finance institutes are found to be higher.

The effect of the gained score is not found to be effective in the context of both male and female students at 01 level, this means that the gained scores of both male and female students are found to be same or similar and the logical reasoning ability was found to be developed equally in both male and female.

The effect of the gained score is not found to be effective in the context of both students who have parents with higher income level and students who have lower income level at 01 level, this means that the gained scores of both students who have parents with higher income level and students who have lower income level are found to be same or similar and the logical reasoning ability was found to be developed equally in both the groups.

The effect of the gained score is found to be effective in the context of the students who have parents with higher educational qualification at 01 level, this means that the gained scores of the students who have parents with higher educational qualification are found to be higher than in students who have parents with lower educational qualification.

6.3.0 Discussion of the Findings:

With a view that the differences and the similarities in the present research and the earlier related researches may get clear, a discussion of the findings is presented here:

By studying the related literatures we could find that in the related literatures of Solanki(1999),H.Patel(2004) Intelligence Quotient was kept as one of the variables in the research in which both the investigators found significant difference on the basis of IQ and which was in favour of students with Higher
Intelligence Level. And so it could be said that the above mentioned related earlier study get support from the present study.

And in the related literatures of Khan(2004), Roy(2004), Tongpaeng (2002), Vaghela (2006), Patel (2001), D Patel (2001), Solanki(1999), Gajjar (2008), Desai (2006), Bakrania (2002) Gender was kept as one of the variables in the research in which in the studies of Tongpaeng (2002), Vaghela (2006), Patel (2001), D Patel (2001) and Desai (2006) there was no significant difference found on the basis of gender. And so it could be said that the above mentioned related earlier study get support from the present study.

In the studies of Khan(2004), Roy (2004), Leuva (2002), Desai (2006), Bakrania (2002) there was significant difference found on the basis of area. But in the present research there was effect of the programme was found no significant difference of area. And so it could be said that the above mentioned related earlier study do not get support from the present study.

6.4.0 Educational Implications:

If the findings of any research can not be useful in the field of education, then that is completely futile. The findings of the present research, if used in the actual classroom, will be beneficial to the students, parents and teachers.

The present study was undertaken keeping in mind the variables like intelligence quotient, area, types of institutes, parents' education level, parents' yearly income and gender. It was found in the experiment that the effect of the programme were significant on each of these variables at 0.01 level. Thus we could say that if such a project is conducted in any school in future, the effectiveness may be found on of the above mentioned variables.

The present study was undertaken keeping in mind the variables like intelligence quotient, area, types of institutes, parents' education level, parents' yearly income and gender. It was found in the experiment that the effect of retention of the programme was significant on each of these variables at 0.01 level. Thus we could say that if such a project is conducted in any school in future, the effectiveness of such programme may be found durable on each of the variable.
During this study it was found that the gained score of the students with higher intelligence quotient is more than the gained score of students with lower intelligence quotient and so we can say the in future while conducting such an experiment the group of the participants should be divided into two different groups of higher and lower intelligence quotient by using an intelligence quotient test. Besides the investigator should pay more attention on the students with lower intelligence level so that their gained score also can be improved. In schools also if such abilities are developed in the students, the students with lower intelligence quotient should be identified and should be given extra attention.

During this study it was found that the gained score of the students from rural area is more than the gained score of students from urban area. With the help of this finding, we can say that in future while conducting similar study, the investigator should pay more attention on the students from rural area so that their gained score also can be improved. In schools also if such abilities are developed in the students, the students from rural area should be identified and should be given extra attention.

During this study it was found that the gained score of the students from self-finance institutes is more than the gained score of students from grant-in-aid institutes. With the help of this finding, we can say that in future while conducting similar study, the investigator should pay more attention on the students from grant in aid institutes so that their gained score also can be improved. In schools also if such abilities are developed in the students, the students from grant in aid institutes should be identified and should be given extra attention.

During this study it was found that the gained score of the students who have parents with higher educational qualification is more than the gained score of students who have parents with lower educational qualification. With the help of this finding, we can say that in future while conducting similar study, the investigator should have a separate meeting with the parents informing them about the importance of such programmes and making them aware about the things that the need to provide the child at home for the proper development of such abilities.
During this study it was found that the gained scores of the students of both genders were found to be similar. By this finding we can know that there is no need to consider gender in any such future research.

During this study it was found that the gained scores students who have parents with lower income level and students who have parents with higher income level were found to be similar. By this finding we can know that there is no need to consider parents' income in any such future research.

6.5.0 Recommendations:

6.5.1 General Recommendations:

- The reasoning ability of the students can be developed easily if the students are given admission after assessing their reasoning ability at the time of their admission only. This does not mean that the students with lower intelligence quotient can not develop reasoning aptitude or they should not be given admission, but the investigator jus advise for proper identification of each student at their entry level.

- At the time of applying such programme in schools the parents' educational level also should be taken in to consideration.

- If such training is provided to the students form the primary level, reasoning ability can be developed among the students from their early stage of development so that the students may be able to perform well in the competitive exams later on.

6.5.2 Recommendations for Future Research:

Any research in any field never actually ends. Many new researches emerge from one research. One research gives direction to many various researches. Considering the limitations and the findings of the present research the following research topics can be suggested.

- It can be conducted for different standard - i.e for std-IX, X, XI, XII.
- It can be conducted in the context of medium of instruction other than gujarati medium.
• It can be designed for challenged students i.e. differently able children.
• One can set relationship of reasoning ability with students achievement, attitude, and interest towards professional courses, I.Qs, E.Qs, S.Qs, ....., etc.

Some titles may be frame-out on the basis of above mentioned aspects;

1. Construction of Reasoning capsules and study of its effects on the students studying in Std. VIII
2. A study of the effect of the parents’ educational level upon the students with similar educational level.
3. A study of the effect of the parents’ annual income level upon the students with similar educational level.
4. A study of the effect of the parents’ educational qualification upon the students with similar parents’ income.
5. A Comparative study of the correlation between students reasoning ability and IQ level in the context of various variables.
6. A comparative study of the reasoning ability of students who have parents with higher educational qualification and students who have parents with lower educational qualification.
7. A comparative study of the reasoning ability of students who have parents with higher income level and students who have parents with lower income level.
8. A comparative study of the reasoning ability of rural area students and urban area students.

**6.6.0 Conclusion:**

The capsules for the development of the reasoning ability for Std. 8 students were prepared and their effectiveness was assessed in the present research.

The researcher prepared various null hypotheses keeping in mind the objectives of the present research. The sample was selected keeping in mind the objectives of the research using appropriate method of sampling. Required tools for the study were prepared and then following the fundamental principles reasoning the capsules were prepared. A pre-test was conducted before starting the experiment, each capsule was explained to the participants properly and then the data was collected using appropriate techniques. Then
by assessing the hypotheses the findings were found and recommendations were made. From the findings found of the present research a humble attempt to show direction to bring about the required improvements is made which it will be useful a little to the students, parents and teachers then attempt made by the researcher will be considered meaningful.