Abstract

The logical mathematical intelligence is the most securely documented of the intelligence. This intelligence derives from the handling of objects, grows into the ability to think concretely about those objects, then develops into the ability to think concretely about those objects, and then develops into the ability to think formally of relations without objects. Problem solving is a process by which an individual uses previously acquired knowledge, understanding, and skill to satisfy the demands of an unfamiliar situation. This study focus on the logical intelligence and problem solving ability in mathematics among secondary school students. Normative survey method was used for the research. Sample includes secondary students. Stratified sampling technique was used. The statistical technique used was correlation and t test. The hypotheses state that. 1) There will be significant correlation between logical intelligence and problem solving ability of secondary school students; 2) There will not be significant difference between male and female students in their logical intelligence Emotional intelligence & 3) There will not be significant difference between male and female students in their problem solving ability.

1. NEED AND SIGNIFICANCE OF THE STUDY

Logical – mathematical intelligence is the ability to calculate, quantify, consider propositions and hypotheses, and carry out complete mathematical operations. Problem solving is a deliberate or purposeful act on the part of an individual to realize the set of goals by inventing some novel methods or systematically following some planned steps for the removal of interferences of the obstacles in the path. Problem solving is an important strategy in mathematics learning. Logical/mathematical intelligence involves
the mental capacity to understand numbers, scientific processes, logic, and reasoning. Hence the investigator decided to carry out a study to find the relationship between logical intelligence and problem solving ability in mathematics among secondary school students.

2. STATEMENT OF THE PROBLEM
The present study is entitled as: “Logical Intelligence and Problem Solving Ability in Mathematics among Secondary School Students.”

3. OPERATIONAL DEFINITIONS OF KEY TERMS
- **Logical intelligence**
  Logical intelligence may be defined as the ability to appreciate and calculate the effect of actions upon objects or ideas and relationships among them.
- **Problem solving ability in mathematics**
  The degree of capability to find correct solution to mathematical problems. In this particular study problem solving ability in mathematics is conceived as total score obtained by an individual in problem solving ability test constructed by the investigator.
- **Secondary School Students**
  Secondary school students consist of all students studying in secondary level i.e. 8th, 9th and 10th in Kerala.

4. OBJECTIVES OF THE STUDY
   I. To find out whether there is any relation between Logical intelligence and Problem solving ability of secondary school students
   II. To find out whether there was any difference between boys and girls in their logical intelligence.
   III. To find out whether there was any difference between boys and girls in their problem solving ability.

5. HYPOTHESES OF THE STUDY
   I. There will be significant correlation between Logical intelligence and Problem solving ability of secondary school students
   II. There will not be any significant difference between boys and girls in their Logical intelligence.
   III. There will not be any significant difference between boys and girls in their Problem solving ability.

6. METHODOLOGY IN BRIEF
Normative survey method (sindhu, 1996) was adopted in the study.
Population: The population for the investigation consisted of all secondary school students in Kerala following Kerala state syllabus.

Sample: Sample of the present study consisted of 300 secondary school students.

Variables: Logical intelligence and Problem solving ability

Tools: The following standardized tools are used for the investigation.
   a. Logical intelligence (constructed by the investigator)
   b. Problem solving ability (constructed by the investigator)
   c. Personal information schedule.

Procedure for data collection
The investigator visited selected schools from where the permission was taken in advance. The investigator personally administered logical intelligence and problem solving ability Scale to students. The data collected from the students were analyzed statistically using appropriate statistical techniques.

Statistical techniques adopted
   a. Karl Pearson’s product-moment method of correlation
   b. Test of significance of difference between means of large independent sample (t test)

Scope Of The Study
The findings of the study would yield information regarding the thinking styles possessed by secondary school students. It also helps to find out the relationship between logical intelligence and problem solving ability in mathematics possessed by secondary school students.

7. ANALYSIS AND DISCUSSION

7.1 Comparison of relationship between the variables logical intelligence and problem solving ability.

Table 1: Comparison of the relationship between the variables logical intelligence and problem solving ability.

<table>
<thead>
<tr>
<th>Variable Correlated</th>
<th>N</th>
<th>R</th>
<th>Level Of Significance</th>
<th>Verbal Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical Intelligence &amp; Problem Solving Ability.</td>
<td>300</td>
<td>0.530</td>
<td>Significant</td>
<td>Substantial Relationship</td>
</tr>
</tbody>
</table>

From the above Table 1 it is clear that the correlation between logical intelligence and problem solving ability among secondary students was .530 which is significant at 0.01 level. The value indicates that there was a substantial or marked correlation between these two variables.

Test of Tenability of Hypothesis 1
The hypothesis 1 entitled “There is a significant correlation between logical intelligence and problem solving ability among secondary school students” was accepted.
Test Of Significance Of The Difference Between Means (T-Test)

Logical Intelligence And Problem Solving Ability Among Secondary School Students– A Comparative Study.

7.2 Comparison Of Scores Of Logical Intelligence Obtained By Secondary Boys And Girls

Table 2: Data and results of t-test for comparing Boys and girls with regard to Logical intelligence

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
<th>Level Of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls</td>
<td>153</td>
<td>68.77</td>
<td>15.36</td>
<td>4.19</td>
<td>Significant At 0.01 Level</td>
</tr>
<tr>
<td>Boys</td>
<td>157</td>
<td>61.64</td>
<td>14.59</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Table 2 it shows that The Mean and standard Deviation scores of girls is 68.77 and 15.36 respectively and that of boys is 61.64 and 14.59 respectively, the critical ratio obtained was 4.19. The table value of ‘t’ at 0.01 level of significance is 2.58 and that at 0.05 level is 1.96.Since the calculated value (4.19) is greater than the value at 0.01 and 0.05 levels, it indicates that there is significant difference between boys and girls with regard to their logical intelligence.

Test of Tenability of Hypothesis 2

The Hypothesis 2 which stated that: “There will not be any significant difference between boys and girls in their Logical intelligence” was rejected.

7.3 Comparison Of Scores Of problem solving ability of secondary boys and girls

Table 3: Data and results of t-test for comparing Secondary boys and girls with regard to problem solving ability.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Girls</td>
<td>153</td>
<td>61.12</td>
<td>6.41</td>
<td>3.97</td>
<td>Significant at 0.01 level</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>157</td>
<td>57.71</td>
<td>8.55</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Table 3 it is found that Mean and Standard Deviation of scores of students on problem solving ability is 61.12 and 6.41 respectively for girls and 57.71 and 8.55 respectively for Boys., the critical ratio obtained was 3.97.Table value of ‘t’ at 0.01 level of significance is 2.58 and that at 0.05 level of significance is 1.96.Thus, the obtained t value is significant at 0.01 level of significance.

Test of Tenability of Hypothesis 3

The Hypothesis 3 which stated that: “There will not be any significant difference between boys and girls in their problem solving ability” was rejected.

Implications Of The Study

The present study helps the learners in different academic areas. The school should provide those activities which improve logical intelligence among students. So that their problem solving ability can be improved. This will be immense help in their academic activities as well as in daily lives.
8. CONCLUSION
The present study points out the importance of logical intelligence in enhancing problem solving ability. The investigator found positive correlation between logical intelligence and problem solving ability among secondary school students. The students who has high logical intelligence has high problem solving ability and the students who has high problem solving ability has logical intelligence. The study points out the importance to upgrade logical intelligence and then to achieve high problem solving ability.

9. REFERENCES