CHAPTER V
SUMMARY, CONCLUSIONS AND SUGGESTIONS

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5.1 Study in brief

The present study has been designed to find out effect of Literacy Rich Approach (LRA) in the language development of children with mental retardation. The study explores the effect of LRA in development of reading vocabulary, reading comprehension, phonological awareness, reading fluency, and writing skills. The objectives, hypotheses, methodology followed and major findings are given below.

5.2 Objectives

1. To find out the effect of literacy – rich approach in the Vocabulary Development of children with mental retardation

2. To compare the vocabulary scores of children with mental retardation of the control and experimental groups in pre, post, parallel, and retention tests.

3. To find out the effect of literacy – rich approach in developing Reading Comprehension in children with mental retardation.

4. To compare the reading comprehension scores of children with mental retardation of the control and experimental groups in pre, post, parallel, and retention tests.

5. To find out the effect of literacy – rich approach in the Phonological Awareness of children with mental retardation.

6. To compare the Phonological Awareness scores of children with mental retardation of the control and experimental groups in pre, post, parallel, and retention tests.

7. To find out the effect of literacy – rich approach in developing
8. To compare the Reading Fluency scores of children with mental retardation of the control and experimental groups in pre, post, parallel, and retention tests.

9. To find out the effect of literacy – rich approach in the development of Writing skills of children with mental retardation.

10. To compare the Writing Skill scores of children with mental retardation of the control and experimental groups in pre, post, parallel, and retention tests.

5.3 **Hypotheses**

The following major research hypotheses are stated:

2. There will be significant difference between the experimental and control groups in vocabulary development.

2. There will be significant difference among the vocabulary scores of children with mental retardation of the control and experimental groups in pre, post, parallel and retention tests.

3. There will be significant difference between the experimental and control groups in developing reading comprehension.

4. There will be significant difference among the reading comprehension scores of children with mental retardation of the control and experimental groups in pre, post, parallel and retention tests.

6. There will be significant difference between the experimental and control groups in developing phonological awareness.
6. There will be significant difference among the phonological awareness scores of children with mental retardation of the control and experimental groups in pre, post, parallel and retention tests.

7. There will be significant difference between the experimental and control groups in developing reading fluency.

8. There will be significant difference among the reading fluency scores of children with mental retardation of the control and experimental groups in pre, post, parallel and retention tests.

10. There will be significant difference between the experimental and control groups in the developing writing skills.

10. There will be significant difference among the writing scores of children with mental retardation of the control and experimental groups in pre, post, parallel and retention tests.

5.4 Methodology in brief

Experimental design (pre-test -post-test –control-design) is used for this study. The sample of the study consisted of 60 children with mild mental retardation who belong to the age group 7-20 (30 experimental and 30 controls) and were studying in the special school. Random sampling method was used to select sample and to assign them to experimental or control groups. There were three levels – standard 1 higher, standard 1 lower and standard III – and in each level 10 students were assigned to experimental group and 10 students to control group. Later two students, one from standard I lower experimental group and one from standard III control group were excluded from the study due to continuous absence.
The study was done in three stages. In the first stage students were pre tested in language development. Tools used for this purpose were: (1) Functional Reading Assessment Test (FRAT) for standard I, (2) Functional Writing Assessment Test (FWAT) for standard I, (3) Functional Reading Assessment Test (FRAT) for standard III and (4) Functional Writing Assessment Test (FWAT) for standard III.

Second stage was the conduct of the experiment (intervention). During this stage instruction through conventional approach was given to experimental and control groups and in addition to that instruction through Literacy Rich Approach (LRA) was given to experimental group.

The third stage was the post intervention test stage. In this students were tested on their performance on language development using three tests. They are 1) parallel test (to measure acquisition level of language development), 2) post test (to measure generalization level of language development) and 3) retention test (to measure maintenance level of language development). The retention test was administered after six months of intervention. The tests used for parallel test are (1) Parallel Functional Reading Assessment Test (PFRAT) for standard I (2) Parallel Functional Writing Assessment Test (PFWAT) for standard I, (3) Parallel Functional Reading Assessment Test (PFRAT) for standard III, and (4) Parallel Functional Writing Assessment Test (PFWAT) for standard III.

The test used for pre testing is used for post and retention tests.

A reading writing package was developed by the investigator for standard I and III which includes all the components of Literacy Rich Approach (LRA), that is, (1)
small group practice, (2) classroom library, (3) daily story reading, (4) writing center, (5) on–going monitoring (6) positive feedback and(7) continuous reinforcement.

The effectiveness of the programme was judged by analyzing difference between (1) pretest and post test mean scores, (2) pretest and parallel test mean scores, (3) pretest and retention test mean scores, and (4) mean scores of experimental and control groups at various levels. The data collected were analyzed on the basis of objectives and hypotheses by employing the following statistical techniques using SPSS.

1. Computation of mean, standard deviation, and percentage.
2. The Student’s t test.
3. Analysis of covariance (ANCOVA)
4. Repeated Measures one way Analysis of Variance (Repeated ANOVA)
5. The test of Least Significant Difference for post hoc comparisons.

5.5 Major Findings

Major findings that have emerged from this study are given under following heads.

5.5.1 Effect of LRA in the language (total reading and writing scores) development of children with mental retardation.

1. For standard 1 higher level ANCOVA results showed that LRA was highly effective in the development of total reading and writing skills as significant mean difference exists between experimental and control groups in post test ( $F_{1,17} = 11.67, p <0.01$), parallel test ( $F_{1,17} = 8.33, p<0.01$) and retention test ( $F_{1,17} =5.04, p <0.05$).
2. In the case of standard 1 lower level as per the ANCOVA, LRA was highly effective in the development of total reading and writing skills as significant mean difference exists between experimental and control groups in post test (F<sub>1,16</sub> = 9.89, p <0.01), parallel test (F<sub>1,16</sub> = 6.10, p<0.05) and retention test (F<sub>1,16</sub> = 16.88, p <0.01).

3. The calculated ANCOVA results for standard III in post test (F<sub>1,16</sub> = 7.95, p <0.01), and parallel test (F<sub>1,16</sub> = 4.49, p<0.05) and retention test (F<sub>1,16</sub> = 7.60, p<0.01) indicates significant mean difference exists between experimental and control groups in the above tests and thus LRA was highly effective in the development of total reading and writing skills.

5.5.2 Significance of mean difference in various pairs of experimental and control groups in total reading and writing scores.

1. For standard 1 higher level the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups shows significant mean difference between the following pairs – reading and writing scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, pre-retention tests (p<0.01) with high mean score in retention test, post-parallel tests (p<0.01) with high mean score in parallel test and parallel-retention tests (p<0.01) with high mean score in parallel test.

2. For standard 1 lower level the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups shows significant mean difference between the following pairs – reading and writing scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests
(p<0.01) with high mean score in parallel test, pre-retention tests (p<0.01) with high mean score in retention test, post-parallel tests (p<0.05) with high mean score in parallel test and parallel-retention tests (p<0.01) with high mean score in parallel test.

3. For standard III the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups shows significant mean difference between the following pairs – reading and writing scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, and pre-retention tests (p<0.01) with high mean score in retention test. In post-parallel tests experimental group has significant mean difference (p<0.05) with high mean score in parallel test.

5.5.3 Effect of LRA in the vocabulary development of children with mental retardation.

1. LRA was effective for development of vocabulary skills for standard 1 higher level as per the revealed ANCOVA results that significant mean difference exists between experimental and control groups in post test (F 1,17 = 9.90, p <0.01), and retention test (F 1,17 = 4.82, p <0.05). There is no significant mean difference exists between the two groups in the parallel test (F 1,17 =0.07 p>0.05).

2. For standard 1 lower level ANCOVA results showed that LRA was effective in the development of vocabulary skills as significant mean difference exists between experimental and control groups in post test (F 1,16 = 5.35, p <0.05), and retention test (F 1,16 = 27.83, p <0.01). There is no significant mean difference exists between experimental and control group in parallel test (F 1,16 =2.43, p>0.05).
3. A similar ANCOVA result was found for standard III that LRA was effective in the development of vocabulary skills as significant mean difference exists between experimental and control groups in post test (\( F_{1,16} = 8.08, p < 0.01 \)) and retention test (\( F_{1,16} = 21.56, p < 0.01 \)). Here also no significant mean difference exists between experimental and control groups in parallel test (\( F_{1,16} = 2.05, p > 0.05 \)).

5.5.4 Significance of mean difference in various pairs of experimental and control groups in vocabulary scores.

1. For standard 1 higher level the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups shows significant mean difference between the following pairs – vocabulary scores of pre-post tests (\( p < 0.01 \)) with high mean score in post test, pre-parallel tests (\( p < 0.01 \)) with high mean score in parallel test, and pre-retention tests (\( p < 0.01 \)) with high mean score in retention test. Control group got significant mean difference in post-parallel tests (\( p < 0.05 \)) with high mean score in parallel test and parallel-retention tests (\( p < 0.05 \)) with high mean score in parallel test.

2. For standard 1 lower level the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for standard 1 lower experimental and control groups shows significant mean difference between the following pairs – vocabulary scores of pre-post tests (\( p < 0.01 \)) with high mean score in post test, pre-parallel tests (\( p < 0.01 \)) with high mean score in parallel test, and pre-retention tests (\( p < 0.01 \)) with high mean score in retention test.
test. Control group got significant mean difference in parallel-retention tests (p<0.01) with high mean score in parallel test.

3. For standard III the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for standard III experimental and control groups shows significant mean difference exists between the following pairs – vocabulary scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, and pre-retention tests (p<0.01) with high mean score in retention test. Control group got significant mean difference in post-parallel tests, post-retention tests and parallel-retention tests (p<0.01) with high mean score in parallel, post, parallel tests respectively.

5.5.5 **Effect of LRA in the development of reading comprehension in children with mental retardation.**

1. The result of ANCOVA for standard I higher level shows LRA was highly effective in the development of reading comprehension skills that significant mean difference exists between experimental and control groups in post test (F ₁,₁₇ = 6.91, p <0.05), parallel test (F ₁,₁₇ =5.12, P<0.05) and retention test (F ₁,₁₇ =17.47 p <0.01).

2. Standard I lower level shows the significant mean difference in the reading comprehension skills between experimental and control groups in parallel test (F ₁,₁₆ = 6.81, p <0.05), and retention test (F ₁,₁₆ = 5.93, p <0.05) as it is expressed by ANCOVA and thus LRA was effective. No such difference was found in post test (F₁,₁₆ = 3.33, p >0.05).
3. In the case of standard III students the effectiveness of LRA in the development of reading comprehension skills is seen only in the retention test with a significant mean difference between experimental and control groups as shown in the ANCOVA results \( F_{1,16} = 11.40, p < 0.01 \). No significant difference was found in post test \( F_{1,16} =1.47, p>0.05 \) and parallel test \( F_{1,16} =0.60, p>0.05 \).

5.5.6 Significance of mean difference in various pairs of experimental and control groups in reading comprehension scores.

1. For standard I higher level the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for standard I higher experimental and control groups shows significant mean difference between the following pairs – reading comprehension scores of pre-post tests \( p<0.01 \) with high mean score in post test, pre-parallel tests \( p<0.01 \) with high mean score in parallel test, pre-retention tests \( p<0.01 \) for experimental and \( p<0.05 \) for control) with high mean score in retention test and post-parallel tests \( p<0.05 \) for experimental and \( p<0.01 \) for control) with high mean difference in parallel test. Control group got significant mean difference in parallel-retention tests \( p<0.01 \) with high mean score in parallel test.

2. For standard I lower level the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for standard I lower experimental group shows significant mean difference between the following pairs – reading comprehension scores of pre-post tests \( p<0.05 \) with high mean score in post test, pre-parallel tests \( p<0.01 \) with high mean score in parallel test, pre-retention tests \( p<0.01 \) for experimental and \( p<0.05 \) for control) with high mean difference in parallel test.
parallel test, and pre-retention tests (p<0.01) with high mean score in retention test and parallel-retention tests (p<0.01) with high mean value for parallel test.

The repeated ANOVA and post hoc test of least significant difference for pairwise comparisons for standard 1 lower control group shows significant mean difference between the following pairs – reading comprehension scores of pre-parallel tests, post-parallel tests and parallel-retention tests (p<0.01) with high mean score in parallel test.

3. For standard III the repeated ANOVA and post hoc test of least significant difference for pairwise comparisons for experimental and control groups show significant mean difference between the following pairs – reading and writing scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, and pre-retention tests (p<0.01) with high mean score in retention test. Control group got significant mean difference in post-parallel tests, post-retention tests and parallel-retention tests (p<0.01) with high mean score in parallel, post, parallel tests respectively.

5.5.7 Effect of LRA in the development of phonological awareness in children with mental retardation.

For standard 1 higher level the ANCOVA test did not prove any significant effect of LRA for the experimental group in the development of phonological awareness as it was shown in post test (F 1,17 =4.05, p>0.05), parallel test ( F 1,17 =0.04,p>0.05), and retention test ( F 1,17 =1.02, p>0.05).

For standard 1 lower level the ANCOVA provided significant gain for the experimental group in the retention test (F 1,16= 6.57,p<0.05) and thus LRA was
effective in the maintenance of phonological awareness. No significant difference was found in post test (F_{1,16} =1.02, p>0.05) and parallel test (F_{1,16} =0.07 p>0.05).

For standard III the ANCOVA test did not yield any significant effect of LRA for the experimental group as it was shown in the post test (F_{1,16} =0.61, p>0.05), parallel test (F_{1,16} =2.31, p>0.05), and retention test (F_{1,16} =2.07, p>0.05).

5.5.8 Significance of mean difference in various pairs of experimental and control groups in phonological awareness scores.

1. For standard 1 higher level the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons of experimental and control groups show significant mean difference between the following pairs – phonological awareness scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, pre-retention tests (p<0.01 for experimental and p<0.05 for control ) with high mean score in retention test.

2. For standard 1 lower level the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups show significant mean difference between the following pairs – phonological awareness scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, pre-retention tests (p<0.01) with high mean score in retention test.

For standard III the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups show significant mean difference between the following pairs – phonological awareness
scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, pre-retention tests (p<0.01) with high mean score in retention test.

5.5.9 Effect of LRA in the development of reading fluency in children with mental retardation.

1. In the reading fluency the effect of LRA is shown for standard I higher level in parallel test (F₁,₁₇ = 6.92, p <0.05) as it was expressed by ANCOVA results of experimental and control groups. No significant mean difference is found in post (F₁,₁₇ = 3.69, p> 0.05) and retention test (F₁,₁₇ = 0.83, p> 0.05).

2. In the case of standard I lower level the ANCOVA results show that LRA was effective in the development of total reading fluency skills as significant mean difference exists between experimental and control groups in post test (F₁,₁₆ = 5.88, p<0.05), parallel test (F₁,₁₆ = 6.56, p<0.05), and retention test (F₁,₁₆ = 6.47, p<0.05).

3. For standard III the effectiveness of LRA in reading fluency skills was shown in the ANCOVA results as significant mean difference exists between experimental and control groups in post test (F₁,₁₆ = 5.77, p<0.05), and retention test (F₁,₁₆ = 5.22, p<0.05). No significant mean difference was found in parallel test (F₁,₁₆ = 3.81, p>0.05).
5.5.10 Significance of mean difference in various pairs of experimental and control groups in reading fluency scores.

For standard 1 higher level the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups show significant mean difference between the following pairs – reading fluency scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, pre-retention tests (p<0.01) with high mean score in retention test.

For standard 1 lower the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups show significant mean difference between the following pairs – reading fluency scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test. In pre-retention tests significant mean score difference exist for experimental group only (p<0.01) with high mean score in retention test.

For standard III the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups show significant mean difference between the following pairs – reading fluency scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, pre-retention tests (p<0.01) with high mean score in retention test. For control group there is significant mean difference for parallel-retention pair with high mean score in parallel test.
5.5.11 Effect of LRA in the development of writing skills in children with mental retardation.

1. The results of ANCOVA revealed that in total writing skills significant mean difference exists between experimental and control groups in the post test (F\(_{1,17} = 32.75, p<0.01\)), parallel test (F\(_{1,17} = 6.00, p <0.05\)), and retention test (F\(_{1,17} =41.30, p <0.01\)) of standard I higher level students and thereby shows that LRA was highly effective.

2. For standard I lower level LRA was effective in the development of total writing skills that significant mean difference exists between experimental and control groups in post test (F\(_{1,16} = 7.33, p<0.05\)), and retention test (F\(_{1,16} = 82.72, p <0.01\)). No significant mean difference exists in the parallel test (F\(_{1,16} = 2.82, p>0.05\)).

3. For standard III effectiveness of LRA in the development of writing skills is seen in the retention test with a significant mean difference between experimental and control groups (F\(_{1,16} = 5.39, p <0.05\)). No significant mean difference exists in post test (F\(_{1,16} =3.96, p>0.05\)) or parallel test (F\(_{1,16} = 0.33 p>0.05\)).

5.5.12 Significance of mean difference in various pairs of experimental and control groups in writing scores.

For standard I higher the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups show significant mean difference between the following pairs – total writing scores of pre-post tests (p<0.01 for experimental and p<0.05 for control) with high mean score
in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, pre-retention tests (p<0.01) with high mean score in retention test. Also there is significant difference in the pairs post-parallel (p<0.01), post-retention (p<0.01) for experimental, and parallel-retention (p<0.01) for control group.

For standard I lower the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups show significant mean difference between the following pairs – total writing scores of pre-post tests (p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, pre-retention tests (p<0.01) for experimental group only with high mean score in retention test. Also there is significant difference in the pairs post-parallel for experimental (p<0.05) and for control (p<0.01), post-retention for control (p<0.01) and parallel-retention for experimental (p<0.05) and for control group (p<0.01).

For standard III the repeated ANOVA and post hoc test of least significant difference for pair wise comparisons for experimental and control groups show significant mean difference between the following pairs – total writing scores of pre-post tests p<0.01) with high mean score in post test, pre-parallel tests (p<0.01) with high mean score in parallel test, pre-retention tests (p<0.01) with high mean score in retention test. Also there is significant difference in the pairs post-parallel (p<0.01) and, post-retention (p<0.01) for control group.
5.6 Tenability of hypotheses

Table 5.1 Tenability of first major hypothesis

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Minor Hypothesis</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There will be significant difference between the experimental and control groups in vocabulary development of standard 1 higher level students with mental retardation in post test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>2.</td>
<td>There will be significant difference between the experimental and control groups in vocabulary development of standard 1 higher level students with mental retardation in parallel test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>3.</td>
<td>There will be significant difference between the experimental and control groups in vocabulary development of standard 1 higher level students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>4.</td>
<td>There will be significant difference between the experimental and control groups in vocabulary development of standard 1 lower level students with mental retardation in post test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>5.</td>
<td>There will be significant difference between the experimental and control groups in vocabulary development of standard 1 lower level students with mental retardation in parallel test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>6.</td>
<td>There will be significant difference between the experimental and control groups in vocabulary development of standard 1 lower level students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>7.</td>
<td>There will be significant difference between the experimental and control groups in vocabulary development of standard III students with mental retardation in post test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>8.</td>
<td>There will be significant difference between the experimental and control groups in vocabulary development of standard III students with mental retardation in parallel test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>9.</td>
<td>There will be significant difference between the experimental and control groups in vocabulary development of standard III students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

The major hypothesis I is accepted in case of post tests and retention tests. However it is rejected in parallel tests.
Table 5.2. Tenability of second major hypothesis

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Minor Hypothesis</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There will be significant difference among vocabulary scores of standard I higher level children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>2.</td>
<td>There will be significant difference among vocabulary scores of standard I higher level children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>3.</td>
<td>There will be significant difference among vocabulary scores of standard I lower level children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>4.</td>
<td>There will be significant difference among vocabulary scores of standard I lower level children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>5.</td>
<td>There will be significant difference among vocabulary scores of standard III children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>6.</td>
<td>There will be significant difference among vocabulary scores of standard III children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
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</tbody>
</table>

The major hypothesis II is accepted.
Table 5.3 Tenability of third major hypothesis

**Major Hypothesis III:** There will be significant difference between the experimental and control groups in reading comprehension development.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Minor Hypothesis</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There will be significant difference between the experimental and control groups in reading comprehension development of standard 1 higher level students with mental retardation in post test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>2.</td>
<td>There will be significant difference between the experimental and control groups in reading comprehension development of standard 1 higher level students with mental retardation in parallel test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>3.</td>
<td>There will be significant difference between the experimental and control groups in reading comprehension development of standard 1 higher level students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>4.</td>
<td>There will be significant difference between the experimental and control groups in reading comprehension development of standard 1 lower level students with mental retardation in post test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>5.</td>
<td>There will be significant difference between the experimental and control groups in reading comprehension development of standard 1 lower level students with mental retardation in parallel test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>6.</td>
<td>There will be significant difference between the experimental and control groups in reading comprehension development of standard 1 lower level students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>7.</td>
<td>There will be significant difference between the experimental and control groups in reading comprehension development of standard III students with mental retardation in post test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>8.</td>
<td>There will be significant difference between the experimental and control groups in reading comprehension development of standard III students with mental retardation in parallel test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>9.</td>
<td>There will be significant difference between the experimental and control groups in reading comprehension development of standard III students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

In the case of retention test the major hypothesis III is accepted whereas in post test it is partially rejected and in parallel test it is partially accepted.
### Table 5.4: Tenability of fourth major hypothesis

**Major Hypothesis IV:** There will be significant difference among reading comprehension scores of children with mental retardation of the experimental and control groups in pre, post, parallel and retention tests.

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Minor Hypothesis</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There will be significant difference among reading comprehension scores of standard I higher level children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>2.</td>
<td>There will be significant difference among reading comprehension scores of standard I higher level children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>3.</td>
<td>There will be significant difference among reading comprehension scores of standard I lower level children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>4.</td>
<td>There will be significant difference among reading comprehension scores of standard I lower level children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>5.</td>
<td>There will be significant difference among reading comprehension scores of standard III children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>6.</td>
<td>There will be significant difference among reading comprehension scores of standard III children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Major hypothesis IV is accepted.
Table 5.5 Tenability of fifth major hypothesis

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Minor Hypothesis</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There will be significant difference between the experimental and control groups in phonological awareness development of standard 1 higher level students with mental retardation in post test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>2.</td>
<td>There will be significant difference between the experimental and control groups in phonological awareness development of standard 1 higher level students with mental retardation in parallel test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>3.</td>
<td>There will be significant difference between the experimental and control groups in phonological awareness development of standard 1 higher level students with mental retardation in retention test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>4.</td>
<td>There will be significant difference between the experimental and control groups in phonological awareness development of standard 1 lower level students with mental retardation in post test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>5.</td>
<td>There will be significant difference between the experimental and control groups in phonological awareness development of standard 1 lower level students with mental retardation in parallel test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>6.</td>
<td>There will be significant difference between the experimental and control groups in phonological awareness development of standard 1 lower level students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>7.</td>
<td>There will be significant difference between the experimental and control groups in phonological awareness development of standard III students with mental retardation in post test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>8.</td>
<td>There will be significant difference between the experimental and control groups in phonological awareness development of standard III students with mental retardation in parallel test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>9.</td>
<td>There will be significant difference between the experimental and control groups in phonological awareness development of standard III students with mental retardation in retention test.</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

Major hypothesis V is rejected in post tests and parallel tests. It is partially rejected in retention tests.
Table 5.6: Tenability of sixth major hypothesis

**Major Hypothesis VI:** There will be significant difference among phonological awareness scores of children with mental retardation of the experimental and control groups in pre, post, parallel and retention tests.

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Minor Hypothesis</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There will be significant difference among phonological awareness scores of standard I higher level children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>2.</td>
<td>There will be significant difference among phonological awareness scores of standard I higher level children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>3.</td>
<td>There will be significant difference among phonological awareness scores of standard I lower level children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>4.</td>
<td>There will be significant difference among phonological awareness scores of standard I lower level children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>5.</td>
<td>There will be significant difference among phonological awareness scores of standard III children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>6.</td>
<td>There will be significant difference among phonological awareness scores of standard III children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Major hypothesis VI is accepted.
Table 5.7 Tenability of seventh major hypothesis

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Minor Hypothesis</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There will be significant difference between the experimental and control groups in reading fluency development of standard 1 higher level students with mental retardation in post test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>2.</td>
<td>There will be significant difference between the experimental and control groups in reading fluency development of standard 1 higher level students with mental retardation in parallel test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>3.</td>
<td>There will be significant difference between the experimental and control groups in reading fluency development of standard 1 higher level students with mental retardation in retention test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>4.</td>
<td>There will be significant difference between the experimental and control groups in reading fluency development of standard 1 lower level students with mental retardation in post test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>5.</td>
<td>There will be significant difference between the experimental and control groups in reading fluency development of standard 1 lower level students with mental retardation in parallel test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>6.</td>
<td>There will be significant difference between the experimental and control groups in reading fluency development of standard 1 lower level students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>7.</td>
<td>There will be significant difference between the experimental and control groups in reading fluency development of standard III students with mental retardation in post test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>8.</td>
<td>There will be significant difference between the experimental and control groups in reading fluency development of standard III students with mental retardation in parallel test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>9.</td>
<td>There will be significant difference between the experimental and control groups in reading fluency development of standard III students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Major hypothesis VII is partially accepted in the case of post, parallel and retention tests.
Table 5.8: Tenability of eighth major hypothesis

**Major Hypothesis VIII:** There will be significant difference among reading fluency scores of children with mental retardation of the experimental and control groups in pre, post, parallel and retention tests.

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Minor Hypothesis</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There will be significant difference among reading fluency scores of standard I higher level children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>2.</td>
<td>There will be significant difference among reading fluency scores of standard I higher level children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>3.</td>
<td>There will be significant difference among reading fluency scores of standard I lower level children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>4.</td>
<td>There will be significant difference among reading fluency scores of standard I lower level children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>5.</td>
<td>There will be significant difference among reading fluency scores of standard III children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>6.</td>
<td>There will be significant difference among reading fluency scores of standard III children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Major hypothesis VIII is accepted.
Table 5.9. Tenability of ninth major hypothesis

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Minor Hypothesis</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There will be significant difference between the experimental and control groups in writing skill development of standard 1 higher level students with mental retardation in post test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>2.</td>
<td>There will be significant difference between the experimental and control groups in writing skill development of standard 1 higher level students with mental retardation in parallel test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>3.</td>
<td>There will be significant difference between the experimental and control groups in writing skill development of standard 1 higher level students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>4.</td>
<td>There will be significant difference between the experimental and control groups in writing skill development of standard 1 lower level students with mental retardation in post test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>5.</td>
<td>There will be significant difference between the experimental and control groups in writing skill development of standard 1 lower level students with mental retardation in parallel test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>6.</td>
<td>There will be significant difference between the experimental and control groups in writing skill development of standard 1 lower level students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
<tr>
<td>7.</td>
<td>There will be significant difference between the experimental and control groups in writing skill development of standard III students with mental retardation in post test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>8.</td>
<td>There will be significant difference between the experimental and control groups in writing skill development of standard III students with mental retardation in parallel test.</td>
<td>Rejected</td>
</tr>
<tr>
<td>9.</td>
<td>There will be significant difference between the experimental and control groups in writing skill development of standard III students with mental retardation in retention test.</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Major hypothesis IX is accepted in the case of retention tests. However it is partially accepted in post tests and partially rejected in parallel tests.
Table 5.10: Tenability of tenth major hypothesis

**Major Hypothesis X:** There will be significant difference among writing skill scores of children with mental retardation of the experimental and control groups in pre, post, parallel and retention tests.

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Minor Hypothesis</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>There will be significant difference among writing skill scores of standard I higher level children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>2.</td>
<td>There will be significant difference among writing skill scores of standard I higher level children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>3.</td>
<td>There will be significant difference among writing skill scores of standard I lower level children with mental retardation of the experimental group in pre, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>4.</td>
<td>There will be significant difference among writing skill scores of standard I lower level children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>5.</td>
<td>There will be significant difference among writing skill scores of standard III children with mental retardation of the experimental group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
<tr>
<td>6.</td>
<td>There will be significant difference among writing skill scores of standard III children with mental retardation of the control group in pre, post, parallel and retention tests.</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Major hypothesis X is accepted.
5.7 Conclusions and suggestions

The major conclusions that are arrived from the present investigation and suggestions made on the basis of the conclusions are given below.

The present study revealed that the experimental group in three levels (standard I higher, standard I lower, and standard III) acquired (based on parallel test results), generalized (based on post test results), and maintained (based on retention test results) literacy skills (total reading and writing score) better than control group with the help of LRA. This shows the effectiveness of LRA in the language development of children with mental retardation. Hence it can be concluded that children with mild mental retardation are able to follow supplementary activities which give high motivation, creative experiences, and age appropriate exercises for literacy instruction and are definitely improved in their literacy skills.

Analysis of data revealed the gain of scores and differences between pre, post, parallel, and retention tests within experimental and control groups indicate that both groups in all levels improved a lot from pretest performance. This shows the effectiveness of systematic instruction followed in the conventional approach and Literacy-Rich Approach. The higher score of experimental group in three levels shows the superiority of LRA over conventional approach.

In the vocabulary development area, in all the three levels experimental group outperformed control group in generalizing and maintaining vocabulary skills. Whereas, both the groups performed similarly in the acquisition stage. Therefore it can be concluded that for initial acquisition of vocabulary skills systematic instruction using conventional approach is adequate. But for applying the acquired knowledge to
a new material and for continuing the skills overtime literacy rich environment and Literacy Rich Approach is essential.

Analysis revealed that both experimental and control groups of the three levels gained scores from initial performance. This indicates the success of instruction in vocabulary area. The experimental group generalized and maintained the learned skills while control group’s performance lowered in these stages.

Results of reading comprehension tests reveal that LRA was highly effective for standard I higher level students. The experimental group learned, generalized and maintained reading comprehension skills much better than control group. In the case of standard I lower level the effectiveness of LRA is seen in initial acquisition (based on parallel test results) and maintenance (based on retention test results). In the post test both groups performed similarly. For standard III, although effect of LRA was not shown in initial acquisition and generalization, it did show in maintenance of reading comprehension skills. Since reading comprehension is one of the hardest area of instruction for children with mental retardation, the result of this study gives some guidelines for successful instruction in developing, generalizing and maintaining the skills.

Group wise analysis in this area shows both the groups-experimental and control-improved from the initial performance. Performance of experimental group is better than control group and it indirectly shows the influence of LRA in improving reading comprehension skills.

In phonological awareness area improvement of students can be seen at all levels. Literacy Rich Approach did not show its effect in this area.
In the area of reading fluency effect of LRA was shown predominantly by standard 1 lower level students. The results of post, parallel and retention tests illustrate this. These lower level students really benefited from various activities and experiences of LRA. Standard III students also exhibit the effect by generalizing and maintaining fluency skills. In standard 1 higher level the effectiveness was seen in acquisition stage. It can be concluded that three levels of students got benefit of LRA at different stages and therefore this approach is effective in reading fluency instruction.

Group wise analysis revealed that students at all levels have improvements in reading fluency skills from initial performance.

In writing skill development standard 1 higher experimental group shows the clear influence of LRA by exhibiting high performance in acquiring, generalizing and maintaining skills. Standard 1 lower level students’ improvement due to LRA is seen in generalizing and maintaining stages. Standard III students’ LRA effect is shown only in maintenance stage. From these results the following conclusion can be made. Systematic instruction using conventional approach may be adequate in the acquisition stages of writing instruction; but there is no doubt that instruction using Literacy Rich Approach is needed for generalizing and maintaining skills.

On the basis of the above conclusions the following suggestions are given:

1. Literacy instructional content for children with mental retardation should be elaborated by skills in vocabulary, reading comprehension, reading fluency and writing skills. Always visualize the functional use of selected content in the life of students with mental retardation.
2. Since literacy skills are fundamental to everyday life, stress should be given for generalization and maintenance of selected literacy content.

3. Professional development is one of the key aspects of successful literacy instruction. Therefore teachers and other professionals should be trained effectively in imparting literacy instruction.

4. Instruction should be followed in a sequential order. Provide alphabet – word - sentence – paragraph order which will enable students to combine learned alphabets and make simple words, then combine learned words and make simple sentences, and finally combine sentences and make paragraph.

5. Context-based letter/word/sentence/paragraph instruction should be followed.

6. For developing and maintaining vocabulary, comprehension, fluency and writing skills literacy rich environment can be established in classrooms as well as in whole school.

7. Educational policy makers should provide encouragement and financial support to schools and child care centers to become literacy-friendly institutes.

8. Instructions provided in the classrooms should be clear and specific. Students should be under the control of literacy instructor, that is, instead of allowing them to read and write anything, instructor should keep specific goals and objectives for each student and let them move forward under the plan/guidance of the teacher.

9. Daily/weekly/monthly monitoring will help teachers, parents and students themselves to become aware of their performance in literacy skills. Based on this teachers can rearrange lessons.
10. Modern technological devices such as computers, CD Roms, tape recorders, language masters, etc. and other technological aids should be provided to classrooms and teachers should be properly trained in using these equipments and resources.

11. Literacy based low cost teaching/learning materials can be made by literacy instructor for day to day use.

12. Teachers should be careful on evaluating student’s problems and remediate them correctly. Some of the literacy problems observed during the study are:
   
   (i) Calling out individual letters, unable to combine them to make word and get meaning out of it.
   
   (ii) Read words one by one and fails to combine them with adequate speed. Thus meaning is lost during the slow motion of reading. Without getting meaning from the text, students loose interest and motivation to read.

   (iii) When reading material is not interesting and age appropriate, students will not improve in reading.

   (iv) Those who lack background knowledge have difficulty in figuring out ideas and concepts. Therefore language experience may help to increase students’ background knowledge and thereby reading comprehension.

   (v) To improve reading comprehension ability, students should be taught to identify semantic, syntactic and contextual clues while reading the text.
(vi) While learning Malayalam literacy students may face additional problems, that is, many Malayalam letters have similar sounds. While it is difficult for normally developing children to learn these sounds correctly, intellectually disabled children’s difficulty is even larger and they should be recognized and proper remedial measures should be followed. Activities to improve visual/auditory discrimination can be arranged.

(vii) Many mildly mentally retarded students have spent years in regular school and followed regular education before starting special education. They may have experienced repeated failures and therefore may not have motivation to learn literacy skills. Therefore motivating them is an essential responsibility of literacy instructor.

13. Parents, family members and care givers should be given proper training and instruction on how to create a literacy rich environment at home and how it can be properly utilized.

14. To improve student’s conceptual level and reading writing skills let them prepare literacy based projects.

15. Older students who have developed literacy skills can act as tutors for lower level students.

16. Grouping for literacy instruction is necessary. Students who are identical in functional level should be grouped together.

17. Reinforcers and rewards for literacy learning can be arranged by providing computer games based on literacy, story books etc.
18. Classroom based/school based/district based literacy competitions can be arranged.

19. For effective literacy instruction classroom/school library is essential. While setting library care should be taken to include books that match the mental age and ability of children with mental retardation.

20. Measures should be taken by Department of Education of concerned state to prepare text books for literacy instruction for the benefit of students with mental retardation in integrated and special education set ups.

21. Special educators should come forward to prepare literacy content for day to day instruction that match the functional level of students in their classroom.

22. Book companies are to be encouraged to publish text books and children’s literature that suit to the mental ability of children with mental retardation.

23. Curriculum content for teacher training courses (Diploma/degree/post graduate) that deal with literacy instruction of children with mental retardation should be well planned including literacy rich approach.

24. State government should distribute literacy based materials free of cost to low income families and families having children with developmental disabilities.

25. A school wise or district wise literacy campaign can be organized to increase awareness of parents, siblings and community members on this subject.

26. The conventional approach, if implemented systematically, is proved to be effective to some extent for developing or acquiring the literacy skills. So effective mechanism should be there to ensure the implementation of the same scientifically.
27. Steps should be taken to give in-service training to special teachers in LRA.

28. Parents, special teachers and public should be made aware of the potential of children with mild mental retardation to develop language skills. Thereby the underestimation of these children can be corrected.

5.8 Implications

When comparing the pretest and parallel test results it is obvious that conventional approach itself brought great improvement in literacy skills for both experimental and control groups at all three levels. This means conventional approach has not been applied systematically by teachers in literacy instruction. There may be several reasons for this:

Nowadays special school teachers of children with mental retardation get very limited time to train academic skills since they have to train other domains of functional curriculum (e.g. social skill, self care, domestic skills etc.). Also they have to find time for various therapeutic activities (speech, physical and occupational), cocurricular activities and competitions such as Special Olympics, very special arts etc. Above mentioned areas are essential when thinking of an integrated or cohesive development of children with mental retardation. Therefore they utilize what ever time they get to train functional academics. It can be seen that like other subject areas the time allotted for literacy instruction is inadequate. While preparing time schedule for all other activities special teachers may not be able to organize literacy classes effectively or plan for additional activities for literacy instruction. Providing a literacy rich environment in classroom requires lot of time, energy and thinking from the part of the literacy instructor. Even though one can visualize the benefits, shortage of time
and preoccupation with other activities prevent even the attempt to try for such situation. But the fact is that literacy rich environment once created, stay there throughout the year and students will get benefit from it each day. Another reason may be that special teachers are reluctant to prepare daily lesson plans and provide instruction systematically.

The results of the present study show that Literacy Rich Approach is highly effective in acquiring, generalizing and maintaining literacy skills of children with mental retardation compared to the present conventional approach. These findings indicate several instructional implications in the field of special education to promote literacy development.

In the field of special education underestimation of children with mental retardation especially to mild category exists. Conventional approach is being used in schools for literacy instruction. As it is seen from this research this approach is adequate for initial literacy acquisition. But what students learn will be forgotten soon since no effective measures are taken for generalization and maintenance. The usual conclusion made by special teachers parents and even professionals is children with mental retardation are dull, they don’t have long term memory, no hope for academic skills etc. The results of retention test, which was given six months after intervention, gave empirical evidence that students can and will learn if effective teaching approach is used. If teachers spend more time and effort for improving basic level skills, students will get a strong foundation for literacy skills and it will carry on throughout the instruction as well as throughout their life. Arrangement of literacy goals, objectives daily lessons, and required instructional activities etc. are essential.
The concepts of mainstreaming, integration and inclusion are better practiced nowadays in the field of special education. Children with mild mental retardation will be placed in regular schools where resource room facility is widely accepted and practiced. In these circumstances, the result of the present study has even more implications. Literacy instruction is always given top priority without considering whether students are in integrated set up or inclusive set up. Regular teachers as well as resource teachers can apply literacy rich approach to improve students’ literacy skills. Also the knowledge and expertise students get through literacy instruction will be transferred to other school subjects such as mathematics, social sciences, value education etc. and they will learn these subjects effectively.

The wide practice among special educators to teach only vocabulary skills may be interpreted as follows: Conventional approach is adequate for acquiring vocabulary skills. But in the case of reading comprehension skills LRA is superior than conventional approach even in the stage of acquisition. Since teachers are not finding much improvement of reading comprehension skills, with conventional approach, they continue teaching of word level skills.

It can be stated that the application of each component of LRA contributed to the literacy improvement in the present study. Dividing students into small groups (same ability as well as mixed ability) benefited students and teacher. For example, this helped children to get help from others, contribute their literacy knowledge to group members, reduce teachers’ responsibility, complete work in time etc. Daily story reading was really an entertainment for students. Without knowing the benefit of it students of experimental group automatically improved literacy skills. Similarly
classroom library was a privilege for them. Students became friends of books. It did not matter whether they read the allotted portion completely or partially, using library books was a chance, a requirement and something that improved their status as a student.

Writing center in the literacy rich classroom was not a pleasant factor in the beginning of the programme. But gradually students themselves experienced the benefit of it. Written document was a permanent record and therefore students could see their work at a later time.

The ongoing monitoring, positive feedback and continuous reinforcement were the components that kept student-teacher relationship, improve students’ self esteem, maintain the quality of their work, and formed their total behaviour in and out of classroom. All these components aided the success of the programme.

The result of the study has several implications with respect to the personal development of children with mental retardation.

1. Students will be able to read current matters (newspaper, magazines etc) and procure information and thus improve general knowledge.

2. Students will become readers of literary materials such as stories, novels, dramas, comics and cartoons. These are reading materials for entertainment. Thus students with mental retardation will be able to spent their free time more fruitfully. No doubt leisure time activities will help them to reduce problem behaviours.

3. Persons who are proficient in literacy skills are considered as intellectually superior to those who cannot and thus these persons will be treated well by
teachers, peers, school authorities and family members and they will be assigned to do more responsible duties.

4. Those who can read and write well will automatically become personally independent, have more self concept and this self growth will help them to open several areas of involvement.

5. In the family students with proficient literacy skills will be helpful for parents and others. They can also involve in day to day responsibilities at home situation. Family members can help children to maintain the learned literacy skills by providing literacy rich environment at home.

6. As observed during the study, the experimental group showed remarkable changes in their behaviour patterns. Development of leadership qualities, improved maturity, quick response to instructions, punctuality, improvement in reading habits, oral language comprehension, perseverance, are some of the noticeable changes. Since the level of these qualities is not pretested, the intensity of the development cannot be established. Still it can assume that application of LRA will bring these changes.

Educational research findings are meant to contribute to educational theory as well as educational practice. The current research provides empirical data to guide researchers and literacy instructors in special education as well as regular education. Review of the earlier research work done in the field of special education especially in mental retardation revealed that programmes for children with mental retardation give due importance in teaching skill areas such as social, self care and vocational. Majority of the research done in literacy instruction concentrate mainly on teaching of
sight vocabulary of functional words. This trend is seen in international and national level researches. As many investigators (e.g. Katims 1991, 1994, 1996) stated children with mental retardation can move toward more advanced literacy if presented with opportunities to interact with words in context, and construct meaning from text. Special educators will attend to various components of literacy if they get adequate information based on scientific research to impart these skills.

The present study gives importance to an elaborate content as well as one method to impart the content, that is, Literacy Rich Approach (LRA). Findings of this study is hoped to inspire and motivate researchers to do further research in this topic. Research works can be focused on each main component (e.g. reading comprehension, reading fluency, writing skill) and do independent study. The beginning researchers can also refrain from the shortcomings and limitations occurred in the present study while conducting scientific research.

The valuable experience gained from the present research and the findings of the study provoke the researcher to think about many issues: (i) whether general intelligence of children with mental retardation increase with improvement in literacy, (ii) factors contributing to the enhancement of mental processes, an essential component in reading comprehension, (iii) involvement in literacy works and corresponding decrease in problem behaviours as well as increase in other subject areas, and (iv) possibility of involving high functioning students in literacy as teacher assistants to tutor low functioning students. All these issues deserve attention of special education researchers.
Since LRA has improved response generalization and maintenance skills of literacy, it can be assumed that same kind of generalization will occur in all areas of teaching.

In short, the present study very convincingly proved the effect of LRA in the literacy skill development of students with mental retardation. Also findings of the present study have very much applications in general and in daily special education practices and research in particular.

5.9 Limitations of the study

Even though the investigator tried very hard to make the present study as scientific as possible, certain limitations could not be avoided. The limitations of the present study are the following:

1. Intervention time was inadequate. Since the content area was vast, long period of intervention might have brought better results.

2. The size of the sample studied was only 60 and they are taken from one school. Larger sample would have brought more generalizable results. The difficulty to get students of identical functional level forced the investigator to limit the sample. Creating a similar experimental condition in various schools was also difficult.

3. If literacy-rich environment was provided throughout the day, children in experimental group would have been experienced high level influence and lot of changes would have occurred.

5.10 Suggestions for further research
In the light of the findings that have emerged from the present study and the valuable experiences gained, the following suggestions are listed for future research.

1. The same study can be conducted with larger sample drawn from many schools so that more generalizable results could be obtained.

2. A similar study can be arranged with sample of students with moderate and severe mental retardation or having clinical syndromes such as Down syndrome.

3. This study can be replicated as a school level project including more teachers, providing more instructional time and evaluating the effectiveness of each component of LRA separately.

4. An attempt may be made to conduct a study in a research setting where literacy rich environment is provided whole day.

5. A study may be conducted to get information on the experimental group of students’ improvement in interpersonal skills, leadership qualities, other subject areas, punctuality, perseverance, and self-discipline that may be developed as byproducts during the intervention of Literacy Rich Approach.

6. Further studies may be conducted to investigate on the reading comprehension skills of students with mental retardation including textually implicit and scriptually implicit materials.

7. An investigation may be conducted to get information on relationship between phonological awareness and literacy development.

8. An attempt may be made to study the role of parents in the implementation of LRA.
9. Effectiveness of parent training in the development of literacy skills among students with mental retardation through LRA can be studied.

10. A more specific study may be conducted to identify the effectiveness of LRA on the development of sub skills of various literacy domains.