TEACHING AIDS
GALLERY
**ALPHABET SET**

A  B  C  D  E

p  m  x

**ALPHABET CHART**

```
ABCDFGHJKLMN
OPQRSTUVWXYZ
```
```
abcdefghijklmnopqrstuvwxz
```
FLASH CARDS

P  

T  

S  

HORSE

bag

Fish
MATCH THE PICTURE AND THE WORD

FROG

LAMP

ICE-CREAM

ELEPHANT
CROSSWORD

LOOK AT THE PICTURES AND COMPLETE THE CROSSWORD.

SOLVED CROSSWORD:

G A R L I C
P U M P K I N
R R O I
C A R R O T C O R N
D A N
I T O
H A L
S H H
T O M A T O
THE BEE AND THE PIGEON
THE HARE AND THE TORTOISE
THE OLD MAN AND THE FRUIT
ANALYSIS OF DATA
AND
INTERPRETATION
CHAPTER V

ANALYSIS OF DATA AND INTERPRETATION

This chapter includes the analysis of the data collected during the research study.

It is presented in two parts:

1. Analysis of data collected during survey and
2. Analysis of data collected during experiment.

The testing of the objectives of the research study follows this analysis. The chapter concludes with the presentation of major findings and conclusions.

5.1 ANALYSIS OF DATA COLLECTED DURING SURVEY:-

The researcher used a questionnaire to collect the data for the survey. (Appendix B). The researcher did both a quantitative and a qualitative analysis of the data thus gathered.

The tool “percentage” was used to do a quantitative analysis of the responses given by the teachers to the first six questions in the questionnaire. It is represented in the following six tables. Observations are given at the end of each table.
QUANTITATIVE ANALYSIS

TABLE 1

OPINION OF THE TEACHERS REGARDING HOW THE COMPETENCY-BASED APPROACH WOULD BE HELPFUL

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualitative development</td>
<td>16.67</td>
</tr>
<tr>
<td>Development of skills</td>
<td>58.33</td>
</tr>
<tr>
<td>Increase in achievement level</td>
<td>25</td>
</tr>
<tr>
<td>None of the above</td>
<td>0</td>
</tr>
</tbody>
</table>

OBSERVATIONS:-
From Table 1, it is clear that a majority of the teachers agree that the competency-based approach will help in the development of skills among the students. One-fourth of them also agree, that it will help in increasing their achievement level.

TABLE 2

OPINION OF THE TEACHERS REGARDING THE EFFECT OF THE COMPETENCY-BASED APPROACH ON THE TEACHING-LEARNING PROCESS.

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rigid and boring</td>
<td>8.33</td>
</tr>
<tr>
<td>Interesting and life-oriented</td>
<td>66.67</td>
</tr>
<tr>
<td>Tiring</td>
<td>8.33</td>
</tr>
<tr>
<td>None of the above</td>
<td>0</td>
</tr>
</tbody>
</table>

OBSERVATIONS: -
From Table 2, it is clear that a majority of the teachers agree that the competency-based approach has made the teaching-learning process
interesting and life-oriented. A very percentage feels that it has made it either rigid and boring or tiring

TABLE 3

OPINION OF THE TEACHERS REGARDING EMPHASIS OF THE COMPETENCY-BASED APPROACH

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too much paper work</td>
<td>25</td>
</tr>
<tr>
<td>Giving individual attention</td>
<td>66.67</td>
</tr>
<tr>
<td>Giving detailed description</td>
<td>8.33</td>
</tr>
<tr>
<td>None of the above</td>
<td>0</td>
</tr>
</tbody>
</table>

OBSERVATIONS:-
From Table 3, it is clear that a majority of the teachers feel that the competency-based approach emphasises on individual attention to students. One-fourth of the teachers feel that it emphasises maintaining records which in turn, involves too much of paper work.

TABLE 4

OPINION OF TEACHERS REGARDING THE EFFECT OF THE COMPETENCY-BASED APPROACH ON THEIR TEACHING.

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creativity</td>
<td>8.33</td>
</tr>
<tr>
<td>Freedom in teaching</td>
<td>25</td>
</tr>
<tr>
<td>Flexibility in planning</td>
<td>66.67</td>
</tr>
<tr>
<td>None of the above</td>
<td>0</td>
</tr>
</tbody>
</table>

OBSERVATIONS:-
The above table makes it clear that majority of the teachers agree that the competency-based approach has given them flexibility in planning their
teaching. One-fourth of them agree that it has given them a lot of freedom while teaching in the classroom. However, a small percentage feels that it encourages creativity.

TABLE 5

OPINION OF TEACHERS REGARDING THE EFFECT OF THE COMPETENCY-BASED APPROACH ON THE STUDENTS.

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active participation</td>
<td>66.67</td>
</tr>
<tr>
<td>Opportunities for interaction</td>
<td>16.67</td>
</tr>
<tr>
<td>Developing talents</td>
<td>8.33</td>
</tr>
<tr>
<td>None of the above</td>
<td>8.33</td>
</tr>
</tbody>
</table>

OBSERVATIONS:-
From the above table, we can say that a majority of the teachers believe that the competency-based approach encourages active participation of the students. Only a small percentage feels that developing the talents of the students is possible.

TABLE 6

OPINION OF TEACHERS ABOUT THE ADEQUACY OF AN ACADEMIC YEAR FOR DEVELOPING ALL THE COMPETENCIES TO MASTERY LEVEL AMONG STUDENTS.

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate to develop all competencies.</td>
<td>8.33</td>
</tr>
<tr>
<td>Inadequate to develop any of the competencies.</td>
<td>0</td>
</tr>
<tr>
<td>Adequate to develop only some of the competencies.</td>
<td>91.67</td>
</tr>
<tr>
<td>None of the above</td>
<td>0</td>
</tr>
</tbody>
</table>

OBSERVATIONS:-
The responses indicate that almost all the teachers feel that an academic year is adequate to develop only some of the competencies to Mastery
level. A small percentage agree that it is sufficient for developing all the competencies to Mastery level.

**QUALITATIVE ANALYSIS**

Question number seven to question number fourteen are concerned with finding the information regarding the various teaching-learning and evaluation procedures adopted by the teachers.

The qualitative analysis of the responses given to these questions is presented below. For convenience of the reader, the question is mentioned in the beginning followed by the observations of the researcher.

7. **Give any two activities you conduct in the classroom for development of the competencies.**

The responses to this question showed that one-third of the teachers preferred activities like language games, pair or group activities in the classroom. Negligible activities were planned by them to encourage interaction in the class. The majority of the activities organised by the teachers included dictation, speak or write on a given topic or answer the questions. In few schools pictures, cassettes or objects were actually used to support the activities.

8. **Give any two questions that you ask in the examination while evaluating the students.**

From the responses given to this question, it was clear that in about one-third of the schools the evaluation included only oral and written questions. In the remaining schools, the marks for the practical examination were given based on the project work assigned as
homework. No separate questions were directly asked to the students as apart of practical examination.

9. What is the distribution of marks for the practical examination, oral examination and written examination?
The responses given to the above mentioned question made it clear that in two-third of the schools the maximum weightage was given to the written examination. Elsewhere, the oral and written examination got an equal weightage. In only a negligible percentage of schools, oral examination got maximum weightage. Practical examination got the least weightage in all the schools.

10. For how many marks is each competency tested during the entire year?
As a response to this question, one-third of the teachers wrote that it was not decided in advance regarding the marks for which each competency was to be tested during the year. There was no uniformity observed in the distribution of marks for testing the various competencies.

11. How many times is each competency tested during the entire year?
The responses given to this question indicated that there was no uniformity between the schools regarding how many times each competency was to be tested during the year. Again, within the school there was no pre-planning regarding how many times each competency was to be tested during the year.
12. Which audio-visual aids do you use in the classroom?

From the responses, it was observed that teachers in only one-fourth of the schools made use of any audio-visual aids while teaching. The main teaching aids used were pictures and charts. Very rarely, flashcards were used.

13. Name any special activity you organise for language development of the students besides your day-to-day teaching.

Besides the day-to-day teaching, story-telling, skits and recitation, competitions were conducted in almost all the schools for the language development of the students.

14. Mention the difficulties you come across while implementing the competency-based approach.

The main difficulties enlisted by almost all the teachers were: - the large number of students in the classroom, devoting time to every child during teaching as well as during evaluation and the accompanying clerical work while keeping the records.

5.2 ANALYSIS OF DATA COLLECTED DURING EXPERIMENT:

The analysis of the data collected is presented in three parts: -

- Analysis of the data collected during the orientation programme.
- Analysis of the data collected while implementing the ‘activity-based teaching-learning and evaluation strategy’.
Analysis of the data collected while implementing the follow-up programme.

5.2.1 ANALYSIS OF DATA COLLECTED DURING THE ORIENTATION PROGRAMME

Feedback sheet was used for finding out the effectiveness of the orientation programme. (Appendix F) A quantitative and a qualitative analysis was done of the responses given by the teachers.

For the quantitative analysis, the opinion score of every participating teacher regarding the programme, as well as the average opinion score was calculated. The responses given by the participating teachers to each statement were analysed.

QUANTITATIVE ANALYSIS

TABLE 7
OPINION SCORE OF EACH PARTICIPATING TEACHER

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>57</td>
</tr>
<tr>
<td>2</td>
<td>46</td>
</tr>
<tr>
<td>3</td>
<td>46</td>
</tr>
<tr>
<td>4</td>
<td>53</td>
</tr>
<tr>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>46</td>
</tr>
<tr>
<td>7</td>
<td>53</td>
</tr>
<tr>
<td>8</td>
<td>51</td>
</tr>
</tbody>
</table>

TOTAL SCORE: - 402
AVERAGE SCORE: - 50.25
OBSERVATIONS: -

The opinionnaire prepared by the researcher consisted of twelve statements. Six statements were in a positive manner and six were in a negative manner. The five options given were - strongly agree, agree, undecided, disagree and strongly disagree.

The statements written in the positive manner were scored as follows: -

<table>
<thead>
<tr>
<th>Score</th>
<th>Positive Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>4</td>
<td>Agree</td>
</tr>
<tr>
<td>3</td>
<td>Undecided</td>
</tr>
<tr>
<td>2</td>
<td>Disagree</td>
</tr>
<tr>
<td>1</td>
<td>Strongly disagree</td>
</tr>
</tbody>
</table>

The statements written in the negative manner were scored as follows: -

<table>
<thead>
<tr>
<th>Score</th>
<th>Negative Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>2</td>
<td>Agree</td>
</tr>
<tr>
<td>3</td>
<td>Undecided</td>
</tr>
<tr>
<td>4</td>
<td>Disagree</td>
</tr>
<tr>
<td>5</td>
<td>Strongly disagree</td>
</tr>
</tbody>
</table>

The opinion score of each participating teacher was interpreted keeping the following scores as reference: -

<table>
<thead>
<tr>
<th>Opinion Score</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most favourable opinion</td>
<td>12 x 5 = 60</td>
</tr>
<tr>
<td>Neutral opinion</td>
<td>12 x 3 = 36</td>
</tr>
<tr>
<td>Most unfavourable opinion</td>
<td>12 x 1 = 12</td>
</tr>
</tbody>
</table>
From Table 7, it is clear that all the eight participating teachers had a most favourable opinion regarding the orientation programme as each of the scores is well above 36. The average score of 50.25 also indicates a favourable opinion of the participating teachers.

**TABLE 8**

ANALYSIS OF RESPONSES OF EACH STATEMENT IN QUESTIONNAIRE

<table>
<thead>
<tr>
<th>STATEMENT NO.</th>
<th>STRONGLY AGREE</th>
<th>AGREE</th>
<th>UNDECIDED</th>
<th>DISAGREE</th>
<th>STRONGLY DISAGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>*1</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>*4</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*5</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>*8</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>*10</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*11</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

(Note: - the statements marked with ‘*’ denote the statements written in a positive manner.)

**OBSERVATIONS:**

Table 8 shows that for most of the statements written in a positive manner the responses given by teachers are in the ‘agree’ or ‘strongly agree’ column. Similarly, for most of the statements written in a negative manner the responses are in the ‘disagree’ or ‘strongly disagree’ column. This again shows a favourable opinion of the participating teachers towards the Orientation Programme.

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QUALITATIVE ANALYSIS

A qualitative analysis of the programme was done by analysing the responses given by all the eight participating teachers to the two open-ended questions. For ready reference, the questions are given in the beginning. The responses of the teachers then follow.

➢ Mention the aspects of the programme which you appreciated and those where you feel modifications were necessary.

Aspects appreciated by the participating teachers:

- The plan given to the participating teachers during the programme was a very detailed one.
- The plan was explained in a very systematic and sequential manner.
- The researcher gave a lot of opportunities to the participating teachers for interaction during the programme, while discussing the teaching-learning and evaluation activities.
- The programme helped the participating teachers to understand how to relate the classroom activities with day-to-day situations. The researcher discussed a variety of language games to be conducted in the classroom. These would help in making the class activities interesting and motivating.
- The researcher provided many beautiful pictures. Using them the participating teachers prepared many teaching aids during the programme.
Aspects where the participating teachers felt modifications necessary:

- Some more time could have been devoted to actual practice of conducting the activities.

> **Compare this programme with the one you have attended earlier:**

- The programme conducted by the researcher was specific and sequential as compared to the programme attended by them earlier conducted by the M.S.C.E.R.T., Pune. In the programme conducted by the researcher, a lot of interaction and discussion was possible and it included activities for the participants that kept them active and involved. Variety of activities were discussed and a number of teaching aids were prepared during the programme conducted by the researcher. As compared to this, in the earlier programme organised at the M.S.C.E.R.T., Pune as the number of participants was very large less opportunity was available for discussion and interaction.

### 5.2.2 ANALYSIS OF THE DATA COLLECTED DURING THE IMPLEMENTATION OF THE ‘ACTIVITY-BASED’ TEACHING-LEARNING AND EVALUATION STRATEGY:

The data collected during the experiment was analysed using the following statistical tools:

- ‘t’ test of significance of difference between means: - The following formulae were used for calculation and the obtained ‘t’ value was tested at 0.01 level.
Mean: -
\[ M = \frac{\Sigma X}{N} \] (Garrett formula 1, pg.27)

Standard deviation: -
\[ \sigma = \sqrt{\frac{\Sigma x^2}{N}} \] (Garrett formula 12, pg.50)

Standard error of Mean: -
\[ SE_M = \frac{\sigma}{\sqrt{N}} \] (Garrett formula 44, pg.185)

Co-relation: -
\[ r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \cdot \Sigma y^2}} \] (Garrett formula 28, pg.139)

Standard error of difference: -
\[ SE_D = \frac{\sigma_D}{\sqrt{\frac{1}{M_1} + \frac{1}{M_2} - 2\tau_{12} \sigma_{M_1} \sigma_{M_2}}} \] (Garrett formula 59, pg.226)

't' value: -
\[ 't' = \frac{M_2 - M_1}{SE_D} \]

- **Graphical representation:** Following two types of graphs were used:

  **Line graph:** It was used to compare the pre-test and the post-test scores of the students.

  **Bar graph:** It was used to compare the competency-wise and section wise performance of the students.

- **Chi-square test:** This test was used to find out the answers to the specific research questions taken up for study by the researcher. (Chapter 1 pg.24) The following formula was used for calculation and the obtained \( \chi^2 \) value was tested at 0.01 level.
Chi-square value: -
\[ \chi^2 = \sum \left[ \frac{(f_o - f_e)^2}{f_e} \right] \] (Best and Kahn, 1995: 359)

- **Percentage**: The analysis of the responses given to the questionnaire by the teachers and the parents was done by using the tool 'percentage.'

This analysis of the data is presented in the following manner: -

A) Analysis of the pre-test and the post-test mean of all the eight experimental groups.

B) Graphical comparison of the scores of the students from all the eight experimental groups.

C) Analysis of the pre-test mean and the post-test mean of the control group and the experimental group.

D) Graphical comparison of the scores of the students from the control group and the experimental group.

E) Analysis to find out the answers to the specific research questions.

F) Analysis of the responses of the participating teachers regarding the "Activity-based" teaching-learning and evaluation strategy.

G) Analysis of the observations made by the parents.

A) **ANALYSIS OF THE PRE-TEST AND THE POST-TEST MEAN OF ALL THE EIGHT EXPERIMENTAL GROUPS:** -
TABLE 9

COMPARISON OF THE PRE-TEST MEAN AND THE POST-TEST MEAN OF EXPERIMENTAL GROUP 1

<table>
<thead>
<tr>
<th>EXPERIMENTAL GROUP 1</th>
<th>PRE-TEST</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Mean Score</td>
<td>22.07</td>
<td>37.69</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3.45</td>
<td>2.52</td>
</tr>
<tr>
<td>Standard error of Mean</td>
<td>0.51</td>
<td>0.38</td>
</tr>
</tbody>
</table>

Difference between means: - 15.62
Co-relation: - 0.46
Standard error of difference: - 0.47
't' value: - 33.23

OBSERVATIONS: -

Here, N is 45. From Table D, we observe that at 0.01 level ‘t’ value has to be 2.69 to be considered as significant. The obtained ‘t’ value of 33.23 is far more than 2.69 and hence, significant.

The “Activity-based” teaching-learning and evaluation strategy is effective in case of experimental group 1.
### TABLE 10

**COMPARISON OF THE PRE-TEST MEAN AND THE POST-TEST MEAN OF EXPERIMENTAL GROUP 2**

<table>
<thead>
<tr>
<th>EXPERIMENTAL GROUP 2</th>
<th>PRE-TEST</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td><strong>Mean Score</strong></td>
<td>20.57</td>
<td>38</td>
</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td>5.54</td>
<td>4.16</td>
</tr>
<tr>
<td><strong>Standard error of Mean</strong></td>
<td>1.01</td>
<td>0.76</td>
</tr>
</tbody>
</table>

Difference between means: - 17.43
Co-relation: - 0.58
Standard error of difference: - 0.84
‘t’ value: - 20.75

**OBSERVATIONS:**

Here N is 30. From Table D, we observe that ‘t’ has to be 2.76 to be regarded as significant at 0.01 level. The obtained ‘t’ of 20.75 is far higher than 2.76 and can hence, be regarded as significant.

The “Activity-based” teaching-learning and evaluation strategy is effective in case of experimental group 2.
### TABLE 11

**COMPARISON OF THE PRE-TEST MEAN AND THE POST-TEST MEAN OF EXPERIMENTAL GROUP 3**

<table>
<thead>
<tr>
<th>EXPERIMENTAL GROUP 3</th>
<th>PRE-TEST</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>Mean score</td>
<td>21.55</td>
<td>38.4</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.85</td>
<td>2.69</td>
</tr>
<tr>
<td>Standard error of mean</td>
<td>0.52</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Difference between means: - 16.85  
Co-relation: - 0.48  
Standard error of difference: - 0.47  
`t` value: - 35.85

**OBSERVATIONS:** -

Here N is 55. From Table D we observe that ‘t’ has to be 2.68 to be regarded as significant at 0.01 level. The obtained ‘t’ value of 35.85 is far higher than 2.68 and hence can be regarded as significant.

The “Activity-based” teaching-learning and evaluation strategy is effective for experimental group 3.
<table>
<thead>
<tr>
<th>EXPERIMENTAL GROUP 4</th>
<th>PRE-TEST</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Mean score</td>
<td>21.37</td>
<td>39.08</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>4.52</td>
<td>2.46</td>
</tr>
<tr>
<td>Standard error of mean</td>
<td>0.58</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Difference between means: - 17.71
Co-relation: - 0.53
Standard error of difference: - 0.49
‘t’ value: - 36.14

**OBSERVATIONS:**

Here N is 60. From Table D we observe that ‘t’ value has to be 2.66 to be regarded as significant at 0.01 level. The obtained ‘t’ value of 36.14 is far higher than 2.66 and can be regarded as significant.

Thus, we can say that the “Activity-based” teaching-learning and evaluation strategy is effective for experimental group 4.
TABLE 13

COMPARISON OF THE PRE-TEST MEAN AND THE POST-TEST MEAN OF EXPERIMENTAL GROUP 5

<table>
<thead>
<tr>
<th>EXPERIMENTAL GROUP 5</th>
<th>PRE-TEST</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Mean score</td>
<td>22.28</td>
<td>39.34</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>4.37</td>
<td>3.1</td>
</tr>
<tr>
<td>Standard error of mean</td>
<td>0.62</td>
<td>0.44</td>
</tr>
</tbody>
</table>

Difference between means: - 17.06
Co-relation: - 0.62
Standard error of difference: - 0.48
‘t’ value: - 35.54

OBSERVATIONS: -
When N is 50, from Table D we observe that ‘t’ should be 2.68 to be regarded as significant at 0.01 level. The obtained ‘t’ value of 35.54 is far higher than 2.68 and hence significant.

The “Activity-based” teaching-learning and evaluation strategy is effective for experimental group 5.
### TABLE 14

**COMPARISON OF THE PRE-TEST MEAN AND THE POST-TEST MEAN OF EXPERIMENTAL GROUP 6**

<table>
<thead>
<tr>
<th>EXPERIMENTAL GROUP 6</th>
<th>PRE-TEST</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Mean score</td>
<td>23.4</td>
<td>38.23</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>4.19</td>
<td>2.76</td>
</tr>
<tr>
<td>Standard error of mean</td>
<td>0.71</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Difference between means: - 14.83  
Co-relation: - 0.47  
Standard error of difference: - 0.63  
‘t’ value: - 23.54

**OBSERVATIONS:**

Here N is 35. From Table D, we observe that if ‘t’ value has to be 2.72 to be regarded as significant at 0.01 level. The obtained ‘t’ value of is far higher than 2.72 and hence is significant.

The “Activity-based” teaching-learning and evaluation strategy is effective for experimental group 6.
TABLE 15

COMPARISON OF THE PRE-TEST MEAN AND POST-TEST MEAN OF EXPERIMENTAL GROUP 7

<table>
<thead>
<tr>
<th>EXPERIMENTAL GROUP 7</th>
<th>PRE-TEST</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>Mean score</td>
<td>18.84</td>
<td>36.31</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>4.4</td>
<td>4.36</td>
</tr>
<tr>
<td>Standard error of mean</td>
<td>0.59</td>
<td>0.59</td>
</tr>
</tbody>
</table>

Difference between means: - 17.47
Co-relation: - 0.48
Standard error of difference: - 0.61
‘t’ value: - 28.64

OBSERVATIONS: -

Here N is 55. From Table D we observe that ‘t’ value has to be 2.68 to be regarded as significant at 0.01 level. The obtained ‘t’ value of 28.64 is far higher than 2.68 and hence be regarded as significant. The “Activity -based” teaching - learning and evaluation strategy is effective for experimental group 7.
COMPARISON OF THE PRE-TEST MEAN AND THE POST-TEST MEAN OF EXPERIMENTAL GROUP 8

<table>
<thead>
<tr>
<th>EXPERIMENTAL GROUP 8</th>
<th>PRE-TEST</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Mean score</td>
<td>24.44</td>
<td>39.36</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.87</td>
<td>2.13</td>
</tr>
<tr>
<td>Standard error of mean</td>
<td>0.55</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Difference between means: - 14.92
Co-relation: - 0.59
Standard error of difference: - 0.45
‘t’ value: - 33.15

OBSERVATIONS:

When N is 50, from Table D we observe that ‘t’ value should be 2.68 to be regarded as significant at 0.01 level. Here, the obtained ‘t’ value is 33.15. It is far higher than 2.68 and hence significant.

The “Activity-based” teaching-learning and evaluation strategy is effective for experimental group 8.
**TABLE 17**


<table>
<thead>
<tr>
<th>GROUP</th>
<th>PRE-TEST DEVIATION</th>
<th>POST-TEST DEVIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.45</td>
<td>2.52</td>
</tr>
<tr>
<td>2</td>
<td>5.54</td>
<td>4.16</td>
</tr>
<tr>
<td>3</td>
<td>3.85</td>
<td>2.69</td>
</tr>
<tr>
<td>4</td>
<td>4.52</td>
<td>2.46</td>
</tr>
<tr>
<td>5</td>
<td>4.37</td>
<td>3.1</td>
</tr>
<tr>
<td>6</td>
<td>4.19</td>
<td>2.76</td>
</tr>
<tr>
<td>7</td>
<td>4.4</td>
<td>4.36</td>
</tr>
<tr>
<td>8</td>
<td>3.87</td>
<td>2.13</td>
</tr>
</tbody>
</table>

**OBSERVATIONS:**

From the above Table, it is clear that the deviation has decreased in the post-test in case of all the eight groups when compared with respective deviations in the pre-test.

*This again shows the effectiveness of the “Activity-based” teaching-learning and evaluation strategy prepared by the researcher.*
B) GRAPHICAL COMPARISON OF THE SCORES OF THE STUDENTS FROM ALL THE EIGHT EXPERIMENTAL GROUPS.

FIGURE 1

COMPARISON OF THE PRE-TEST AND THE POST-TEST SCORES OF ALL THE EIGHT EXPERIMENTAL GROUPS

OBSERVATIONS:

The above line graph shows a great shift of the post-test scores curve of all the eight experimental groups from the pre-test scores curve. Further, the post-test curve shows that highest frequency lies in between the class intervals 36—38. This means that the strategy helped majority of the students to secure marks between 36 and 38.

The graph points out the effectiveness of the "Activity-based" teaching-learning and evaluation strategy prepared by the researcher.
FIGURE 2

COMPETENCY WISE PERCENTAGE OF STUDENTS FROM ALL GROUPS ACHIEVING MASTERY LEVEL IN ALL THE FOUR COMPETENCY-BASED TESTS AND IN THE COMPETENCY-BASED POST-TEST

OBSERVATIONS:

From the above bar graph, it is clear that in both the four competency-based tests and the competency-based post-test 80% or more students have achieved mastery level in the competencies: - 1.1.1, 1.1.3, 2.1.1, 2.1.3, 3.1.1 and 4.1.1. More than 50% of the students have achieved mastery level in the competencies: - 1.1.2, 2.1.2, 3.1.2, 4.1.2, 4.1.3, 5.1.2, 7.1.1 and 9.1.1 in the four competency-based tests and the competency-based post-test. Less than 50% of the students have achieved mastery level in the four competency-based tests and the competency-based post-test in the competencies: - 2.1.4, 3.1.3, 5.1.1, 6.1.1 and 8.1.1.

The graph points out that the achievement progress is similar in the four competency-based tests when compared with the competency-based post-test.
FIGURE 3
COMPARISON OF THE MEAN OF THE PRACTICAL, ORAL AND WRITTEN SECTIONS OF THE COMPETENCY-BASED PRE-TEST AND COMPETENCY-BASED POST-TEST

OBSERVATIONS: -

The above graph shows that the mean of all the three sections of the tests: - Practical, Oral and Written have increased in the post-test when compared with the respective means of the three sections of the pre-test. This clearly proves that the “Activity-based” teaching-learning and evaluation strategy is useful in improving the achievement level of students in all the three sections of the tests.

TABLE 18
COMPARISON BETWEEN THE PRE-TEST MEAN OF THE CONTROL GROUP AND THE EXPERIMENTAL GROUP

<table>
<thead>
<tr>
<th>GROUP</th>
<th>CONTROL</th>
<th>EXPERIMENTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Mean score</td>
<td>23.22</td>
<td>22.28</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.59</td>
<td>4.37</td>
</tr>
<tr>
<td>Standard error of mean</td>
<td>0.51</td>
<td>0.62</td>
</tr>
</tbody>
</table>

Difference between means: - 0.94
Co-relation: - 0.51
Standard error of difference: - 0.57
‘t’ value: - 1.65

DISCUSSION:

Here N is 50. From Table D, we observe that when N is 50 ‘t’ value has to be 2.68 to be regarded as significant. The obtained ‘t’ value is 1.65, which is less than 2.68.

There is no significant difference between the two groups at the beginning of the academic year i.e. before the commencement of the experiment.
TABLE 19

COMPARISON BETWEEN THE POST-TEST MEAN OF THE CONTROL GROUP AND THE EXPERIMENTAL GROUP

<table>
<thead>
<tr>
<th>GROUP</th>
<th>CONTROL</th>
<th>EXPERIMENTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Mean score</td>
<td>31.24</td>
<td>39.34</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.35</td>
<td>3.1</td>
</tr>
<tr>
<td>Standard error of mean</td>
<td>0.47</td>
<td>0.44</td>
</tr>
</tbody>
</table>

Difference between means: - 8.1
Co-relation: - 0.41
Standard error of difference: - 0.49
‘t’ value: - 16.53

OBSERVATIONS: -

Here N is 50. From Table D, we find that ‘t’ value has to be 2.68 to be regarded as significant. The obtained ‘t’ value of 16.53 is far higher than 2.68 and hence is significant. The difference between the post-test mean of the control group and the experimental group is significant.

The students from the experimental group have performed significantly better than the students from the control group.
D) GRAPHICAL COMPARISON OF THE SCORES OF THE STUDENTS FROM THE CONTROL GROUP AND THE EXPERIMENTAL GROUP

FIGURE 4
COMPARISON OF PRE-TEST AND THE POST-TEST SCORES OF THE EXPERIMENTAL GROUP

OBSERVATIONS:

A great shift is seen in the curve depicting the post-test scores of the experimental group when compared with the curve showing its pre-test scores. Moreover, the curve shows that the highest frequency of the students lies between the class intervals 39—41. This means that the strategy helped majority of the students to secure marks between 39 and 41.

This proves the effectiveness of the “Activity-based” teaching-learning and evaluation strategy prepared by the researcher.
FIGURE 5

COMPARISON OF THE PRE-TEST AND THE POST-TEST

SCORES OF THE CONTROL GROUP

OBSERVATIONS:

The curve depicting the distribution of the scores of the post-test does not show a major shift when compared with the curve depicting the pre-test scores. The post-test scores curve shows that the majority of the students lie between the scores 27 and 35. This wide range shows that the usual method followed in schools does not help to improve the performance of majority of the students.
OBSERVATIONS:

The above line graph of the post-test scores curve of the experimental group and control group shows the shift in the scores of the experimental group is much more when compared with the control group. Further, in the experimental group majority of the students lie in the class interval 39—41. As compared to this, for the control group we find that the majority of the students lie in between the class intervals 27--35. The graph shows that the achievement of the students in the experimental group is higher than the achievement of students in the control group. 

The graph proves the effectiveness of the “Activity-based” teaching-learning and evaluation strategy prepared by the researcher.
OBSERVATIONS:

The above bar graph shows that a higher percentage of students from the experimental group have achieved mastery level in all the competencies when compared with the percentage of students achieving mastery level from the control group. The graph shows that the performance of students from the experimental group is better than the performance of students from the control group in each competency.

The graph proves that the "Activity-based" teaching-learning and evaluation strategy is effective.
E) ANSWERS TO THE SPECIFIC RESEARCH QUESTIONS:-

The chi-square test was used to find out the answers to the specific research questions. (Chapter1 pg24) For illustration, the first table is followed by the actual calculations for the expected frequencies and computation of the $\chi^2$ value.

The students who attained mastery level have been termed as Masters and those students who did not attain mastery level have been termed as Non-masters in the following tables.

**Sex:** Is there any significant difference in the achievement level of the girls and boys?

**TABLE 20**

**COMPARISON OF ACHIEVEMENT LEVEL ACCORDING TO SEX**

<table>
<thead>
<tr>
<th>SEX</th>
<th>MASTERS</th>
<th>NON-MASTERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>81 (fo)</td>
<td>128 (fo)</td>
<td>209</td>
</tr>
<tr>
<td>Girls</td>
<td>63 (fo)</td>
<td>108 (fo)</td>
<td>171</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
<td>236</td>
<td>380</td>
</tr>
</tbody>
</table>

(Note: - 'fo' is used to represent the number of observed frequencies, and 'fe' is used to represent number of expected frequencies.)

The expected frequencies for each of the 4 cells are computed by the formula: -

$$f_e = \frac{(\Sigma f_{column})(\Sigma f_{row})}{\text{grand total}}$$
Computation of expected frequencies:

\[
\begin{align*}
(144)(209)/380 &= 79.2 \\
(144)(171)/380 &= 64.8
\end{align*}
\]

\[
\begin{align*}
(236)(209)/380 &= 129.8 \\
(236)(171)/380 &= 106.2
\end{align*}
\]

The chi-square value is computed using the formula:

\[
\chi^2 = \sum \left( \frac{(f_o - f_e)^2}{f_e} \right)
\]

Computation of the \(\chi^2\) value:

\[
\begin{align*}
(81 - 79.2)^2 / 79.2 &= 0.04 \\
(63 - 64.8)^2 / 64.8 &= 0.05 \\
(128 - 129.8)^2 / 129.8 &= 0.02 \\
(108 - 106.2)^2 / 106.2 &= 0.03
\end{align*}
\]

\[
\chi^2 = 0.04 + 0.02 + 0.05 + 0.03 = 0.14
\]

degrees of freedom = (rows-1)(columns-1) = (2-1)(2-1) = 1

OBSERVATIONS:

Here degrees of freedom are 1. From Table E, we observe that the chi-square value has to be 6.64 to be regarded as significant at 0.01 level. The obtained value 0.14 is far less than 6.64 and hence not significant.

Thus, no significant difference is observed between the achievement level of girls and boys at the end of the experiment.

*Number of students in the classroom:* Is there any effect of the number of students in the classroom on the achievement level of the students?
TABLE 21

COMPARISON OF ACHIEVEMENT LEVEL ACCORDING TO THE NUMBER OF STUDENTS IN THE CLASSROOM

<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>MASTERS</th>
<th>NON-MASTERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(f₀)14</td>
<td>(fₑ)17.05</td>
<td>(f₀)31 (fₑ)27.95</td>
</tr>
<tr>
<td>2</td>
<td>(f₀)14</td>
<td>(fₑ)11.37</td>
<td>(f₀)16 (fₑ)18.63</td>
</tr>
<tr>
<td>3</td>
<td>(f₀)20</td>
<td>(fₑ)20.84</td>
<td>(f₀)35 (fₑ)34.16</td>
</tr>
<tr>
<td>4</td>
<td>(f₀)20</td>
<td>(fₑ)22.74</td>
<td>(f₀)40 (fₑ)37.26</td>
</tr>
<tr>
<td>5</td>
<td>(f₀)26</td>
<td>(fₑ)18.95</td>
<td>(f₀)24 (fₑ)31.05</td>
</tr>
<tr>
<td>6</td>
<td>(f₀)13</td>
<td>(fₑ)13.26</td>
<td>(f₀)22 (fₑ)21.74</td>
</tr>
<tr>
<td>7</td>
<td>(f₀)16</td>
<td>(fₑ)20.84</td>
<td>(f₀)39 (fₑ)34.16</td>
</tr>
<tr>
<td>8</td>
<td>(f₀)21</td>
<td>(fₑ)18.95</td>
<td>(f₀)29 (fₑ)31.05</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
<td>236</td>
<td>380</td>
</tr>
</tbody>
</table>

\( \chi^2 = 8.85 \)

degrees of freedom = (8-1)(2-1) = 7

OBSERVATIONS:

Here degrees of freedom are 7. From Table E, we observe that the chi-square value has to be 18.48 to be regarded as significant at 0.01 level. The obtained value 8.85 is far less than 18.48 and hence not significant.

No significant effect of the number of students in the classroom is seen on the achievement level of the students at the end of the experiment.
**Education of parents:** - Is there any significant effect of the education of parents on the achievement level of the students?

**TABLE 22**

**COMPARISON OF ACHIEVEMENT LEVEL ACCORDING TO EDUCATION OF PARENTS**

<table>
<thead>
<tr>
<th>EDUCATION</th>
<th>MASTERS</th>
<th>NON-MASTERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.S.C</td>
<td>((f_o)27) ((f_e)31.83)</td>
<td>((f_o)57) ((f_e)52.17)</td>
<td>84</td>
</tr>
<tr>
<td>Graduate</td>
<td>((f_o)78) ((f_e)72.38)</td>
<td>((f_o)113) ((f_e)118.62)</td>
<td>191</td>
</tr>
<tr>
<td>Post-graduate</td>
<td>((f_o)39) ((f_e)39.79)</td>
<td>((f_o)66) ((f_e)65.21)</td>
<td>105</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
<td>236</td>
<td>380</td>
</tr>
</tbody>
</table>

\(\chi^2 = 2.02\)

degrees of freedom = \((2-1)(3-1) = 2\)

**OBSERVATIONS:**

Here degrees of freedom are 2. From Table E, we observe that the chi-square value has to be 9.21 to be regarded as significant at 0.01 level. The obtained chi-square value 2.02 is less than 9.21 and hence not significant.

Thus, no significant effect of the education of parents is observed in the achievement level of the students at the end of the experiment.

**Income of parents:** - Is there any significant effect of the income of the parents on the achievement level of the students?
TABLE 23
COMPARISON OF ACHIEVEMENT LEVEL ACCORDING TO INCOME OF PARENTS

<table>
<thead>
<tr>
<th>INCOME</th>
<th>MASTERS</th>
<th>NON-MASTERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto 1 lakh</td>
<td>(f_o)78</td>
<td>(f_e)77.31</td>
<td>204</td>
</tr>
<tr>
<td>Above 1 lakh</td>
<td>(f_o)66</td>
<td>(f_e)66.69</td>
<td>176</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
<td>236</td>
<td>380</td>
</tr>
</tbody>
</table>

$\chi^2 = 0.02$

degrees of freedom = (2-1)(2-1) = 1

OBSERVATIONS: -

Here degrees of freedom are 1. From Table E, we observe that chi-square value has to be 6.64 to be regarded as significant at 0.01 level. The obtained value 0.02 is far less than 6.64 and hence not significant.

The income of parents does not have a significant effect on the achievement level of the students at the end of the experiment.

Type of family: - Is there any significant difference in the achievement level between students who come from joint families and nuclear families?

TABLE 24
COMPARISON OF ACHIEVEMENT LEVEL ACCORDING TO THE TYPE OF FAMILY

<table>
<thead>
<tr>
<th>FAMILY TYPE</th>
<th>MASTERS</th>
<th>NON-MASTERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear</td>
<td>(f_o)79</td>
<td>(f_e)79.96</td>
<td>212</td>
</tr>
<tr>
<td>Joint</td>
<td>(f_o)65</td>
<td>(f_e)63.66</td>
<td>168</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
<td>236</td>
<td>380</td>
</tr>
</tbody>
</table>

240
\[ \chi^2 = 0.06 \]

degrees of freedom = \((2-1)(2-1) = 1\)

**OBSERVATIONS:**

Here there are 1 degrees of freedom. From Table E, we observe chi-square value has to be 6.64 to be significant. The obtained value 0.06 is far less than 6.64 and hence not significant.

No significant difference is seen between the achievement level of students coming from joint families and from nuclear families at the end of the experiment.

**F) ANALYSIS OF THE RESPONSES OF THE PARTICIPATING TEACHERS REGARDING THE ACTIVITY-BASED TEACHING-LEARNING AND EVALUATION STRATEGY:**

A questionnaire was used to get the responses of the participating teachers about the various aspects of the strategy after its implementation in their respective classes. (Appendix C)

A quantitative and a qualitative analysis was done of the responses given by the participating teachers to the questions. The analysis is presented according to the four parts of the questionnaire. For the convenience of the reader, separate headings are given according to the questions.
QUANTITATIVE ANALYSIS

1. ABOUT THE RESEARCHERS PLAN:

TABLE 25

OPINION OF TEACHERS ABOUT THE FORMAT

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NUMBER OF TEACHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suitable for teachers</td>
<td>6</td>
</tr>
<tr>
<td>Easy to follow</td>
<td>6</td>
</tr>
<tr>
<td>Logical</td>
<td>4</td>
</tr>
</tbody>
</table>

OBSERVATIONS: -
Six out of eight teachers agreed that the format was suitable for the teachers and easy to follow. Half of them also agreed that it was logical. The responses indicate that the teachers had a good opinion about the format used by the researcher for planning the different activities.

TABLE 26

POSITIVE RESPONSES OF TEACHERS ABOUT THE ACTIVITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NUMBER OF TEACHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>In accordance with competencies</td>
<td>5</td>
</tr>
<tr>
<td>Good combination</td>
<td>8</td>
</tr>
<tr>
<td>Useful for fixation</td>
<td>5</td>
</tr>
</tbody>
</table>

OBSERVATIONS: -
The responses show that all the teachers agreed that the activities were a good combination of practical, oral and written activities. More than half of them agreed that they were in accordance with
the competencies against which they were planned and useful for fixation. The responses show that majority of the teachers had a positive opinion about the activities planned by the researcher.

**TABLE 27**

**NEGATIVE RESPONSES OF TEACHERS ABOUT THE ACTIVITIES**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NUMBER OF TEACHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time consuming</td>
<td>2</td>
</tr>
<tr>
<td>Repetitive</td>
<td>4</td>
</tr>
<tr>
<td>Unsuitable for the age-group</td>
<td>2</td>
</tr>
</tbody>
</table>

**OBSERVATIONS:**

Only two out of the eight teachers felt that the activities were time consuming and unsuitable for the age-group. Half of them felt the activities were repetitive. The responses again show that majority of the teachers had positive opinion about the various activities planned by the researcher.

**QUALITATIVE ANALYSIS**

**POSITIVE ASPECTS OF THE PLAN:**

Seven out of eight teachers felt that the plan was creative. They also liked the teaching-aids that were made available by the researcher. Five out of the eight teachers felt that the plan included activities that were interesting and enjoyable. They agreed that the activities encouraged the participation of the students.
NEGATIVE ASPECTS OF THE PLAN: -
Only two out of the eight teachers, felt that the teaching-learning and evaluation activities planned by the researcher were time-consuming. They also stated that some of the parents found it difficult to conduct the activities at home, especially the role-playing activities.

FEATURES, WHICH WERE, LIKED THE MOST: -
• Teaching aids provided by the researcher.
• Practical activities related to day-to-day life that made the teaching-learning process interesting and enjoyable.
• Oral work and group work which facilitated the learning.
• Activities like language games, puzzles, which encouraged thinking and creativity among the students.

DIFFICULTIES FACED: -
• Available time and number of students in the class were disproportionate. This did not allow the teachers to spend extra time to help the weaker students.
• Keeping the record of marks of each student also took a lot of time.
• Difficulty in getting co-operation from parents particularly in role-playing activities.

2. POINTS OF SIMILARITY:-
• Activities like recitation, reading, dictation, oral drills were similar to what the teachers conduct in their classes.
POINTS OF DIFFERENCES:

- All of them agreed that they never plan in such a detailed manner.
- The practical activities like role-play, preparing words from given alphabet, marking alphabet and words from newspapers, etc. were new and motivated the students. They were eager to perform these activities.
- Language games and games which required physical activity were also new and were thoroughly enjoyed by the students.

3. ASPECTS RELATED TO EVALUATION:

QUANTITATIVE ANALYSIS

TABLE 28

RESPONSES OF TEACHERS TO THE YES/NO TYPE OF QUESTIONS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properly spaced</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Easy and practicable</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Related with teaching-learning experiences</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Useful to test development of competencies</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

OBSERVATIONS:

All the teachers agreed that the tests were properly spaced. Seven out of eight teachers felt the activities were related with the
teaching-learning experiences planned and executed in the classroom. Six out of eight agreed that they were useful for testing the development of competencies among the students. Three of them agreed that it was easy to conduct them in the classroom. The responses show that overall the teachers had a favourable opinion about the evaluation procedures adopted by the researcher.

**TABLE 29**

**COMPARISON OF THE COMPETENCY-BASED TESTS PREPARED BY THE RESEARCHER WITH THE SCHOOL TESTS**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>COMPETENCY-BASED TESTS</th>
<th>SCHOOL TESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format</td>
<td>Mentions the competency</td>
<td>Do not mention the competency</td>
</tr>
<tr>
<td>Distribution of marks</td>
<td>Equal weightage to all the competencies. Equal weightage for all the three sections of the tests.</td>
<td>Not planned according to the competencies. Written tests carry maximum weightage</td>
</tr>
<tr>
<td>Test items</td>
<td>Practical, oral and written items</td>
<td>Oral and written items.</td>
</tr>
</tbody>
</table>

**OBSERVATIONS:**

The above table brings out the differences in the two tests. The competency-based tests prepared by the researcher were more comprehensive, planned in detail and distributed the marks equally according to the competencies as well as according to the three sections of the test.
QUALITATIVE ANALYSIS

4. PARTICIPATION OF PARENTS:-
- Five out of the eight teachers stated that they got good co-operation from the parents.
- All the eight teachers agreed that the participation of parents is necessary for facilitating the language development of the students.
- Maximum co-operation was received when practical assignments like preparing flash cards, alphabet set, sticking pictures, etc. were given. Homework given in the form of written activities also got maximum co-operation from the parents.
- Little co-operation was received by the teachers from the parents, w.r.t. role-playing activities.

G) ANALYSIS OF THE OBSERVATIONS MADE BY THE PARENTS:

A questionnaire was used to get the observations of parents. (Appendix D). Both, a quantitative and a qualitative analysis was done of the responses given by the parents. The first two questions were multiple-choice questions where the parents were required to choose from the given alternatives. 'Percentage' tool was used to analyse the responses given by the parents to these questions. The analysis is presented in the following two tables followed by the observations.
QUANTITATIVE ANALYSIS

TABLE 30
POSITIVE RESPONSES OF PARENTS ABOUT THE HOME WORK ACTIVITIES

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy and practicable</td>
<td>39.44</td>
</tr>
<tr>
<td>Interesting</td>
<td>43.66</td>
</tr>
<tr>
<td>Related with day-to-day life</td>
<td>12.68</td>
</tr>
<tr>
<td>Suitable for the child</td>
<td>4.22</td>
</tr>
<tr>
<td>None of the above</td>
<td>0</td>
</tr>
</tbody>
</table>

OBSERVATIONS: -

From the above table, it is clear that majority of the parents thought that the activities were interesting. The next highest response was to the alternative that the activities were easy and practicable. The most important observation is that every parent thought that there was something good about the activities as no parent has chosen the alternative ‘none of the above’.

TABLE 31
NEGATIVE RESPONSES OF PARENTS ABOUT THE HOMEWORK ACTIVITIES

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetitive</td>
<td>25.35</td>
</tr>
<tr>
<td>Boring and time-consuming</td>
<td>1.41</td>
</tr>
<tr>
<td>Difficult for the child</td>
<td>5.63</td>
</tr>
<tr>
<td>Unsuitable for language development</td>
<td>5.63</td>
</tr>
<tr>
<td>None of the above</td>
<td>61.98</td>
</tr>
</tbody>
</table>

OBSERVATIONS: -

Majority of the parents have chosen the alternative ‘none of the above’ which means that they felt that the home-work activities were definitely
useful in some way or the other. One-fourth of the parents felt that the activities were repetitive.

**QUALITATIVE ANALYSIS**

A qualitative analysis was done of the remaining four questions of the questionnaire which were 'open-ended questions'. Here the parents were free to respond in their own words. For ready reference of the reader, the questions are given in the beginning followed by the researchers observations based on the responses given by the parents.

♦ **Mention the activities that you liked and enjoyed the most.**

Majority of the parents enjoyed doing the activities like: -word games, preparation of flash cards and alphabet set, identifying alphabet from newspapers and magazines and sticking pictures. The next choice was the drawing activities. Some of them also liked the recitation of poems with actions.

♦ **Mention the activities where you faced difficulties.**

The role-playing activities were difficult for the parents.

♦ **What were the main difficulties that you faced while conducting the activities?**

The two major difficulties stated by the parents were: -

(1) Taking out time everyday to do the homework activities along with the child. In majority of the cases, since both the parents were working this problem was faced.
(2) Language problem As the mother tongue was different this problem was mainly felt by them.

• Besides the homework, what other efforts do you take for helping the language learning and development?

The main efforts taken by the parents include:

• Encouraging the child to speak in English.
• Reading or telling him stories in English.
• Making him read storybooks.

A few parents also stated that they made the child hear audiocassettes, played language games and made him write something everyday. However, this percentage was very less.

5.2.3 ANALYSIS OF THE DATA COLLECTED DURING THE IMPLEMENTATION OF THE FOLLOW-UP PROGRAMME:

For the analysis of the data collected during the implementation of the follow-up programme the following statistical tools were used:

\textit{t} test: This was to find out the effectiveness of the follow-up programme by finding out the significance of the difference between the means of the pre-test and the post-test. The obtained \textit{t} value was tested at 0.01 level.

Graphical representation: Following two types of graphs were used:
**Line graph:** - It was used to compare the pre-test and the post-test scores.

**Bar graph:** - It was used to compare the competency wise achievement level of students.

The analysis is presented in two parts:

A) Comparison of the pre-test and the post-test mean.
B) Graphical comparison of the scores of the students.

### A) COMPARISON OF THE PRE-TEST AND THE POST-TEST MEAN OF THE EXPERIMENTAL GROUP:

**TABLE 32**

**COMPARISON OF THE PRE-TEST MEAN AND THE POST-TEST MEAN OF EXPERIMENTAL GROUP OF FOLLOW-UP PROGRAMME**

<table>
<thead>
<tr>
<th>EXPERIMENTAL GROUP</th>
<th>PRE-TEST</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Mean score</td>
<td>11.97</td>
<td>18.03</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>2.4</td>
<td>2.43</td>
</tr>
<tr>
<td>Standard error of mean</td>
<td>0.44</td>
<td>0.44</td>
</tr>
<tr>
<td>Difference between means:</td>
<td>6.06</td>
<td></td>
</tr>
<tr>
<td>Co-relation:</td>
<td>0.58</td>
<td></td>
</tr>
<tr>
<td>Standard error of difference:</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>‘t’ value:</td>
<td>15.15</td>
<td></td>
</tr>
</tbody>
</table>

**OBSERVATIONS:**

When N is 30, from Table D we observe that ‘t’ value has to be 2.76 to
be regarded as significant at 0.01 level. The obtained 't' value of 15.15 is far higher than 2.76 and hence significant.

Thus, the training given through the follow-up programme helped the students to improve their achievement significantly.

B) GRAPHICAL COMPARISON OF THE SCORES OF THE STUDENTS: -

FIGURE 8


OBSERVATIONS: -

The above line graph shows that as compared with the pre-test scores curve, a great shift is seen in the post-test scores curve. It means there is a
rise in the achievement level of the students during the post-test. The mean score also shows a great shift.

The graph proves that the 'Follow-up Programme' is effective.

FIGURE 9

COMPETENCYWISE COMPARISON OF THE PERCENTAGE OF STUDENTS ACHIEVING MASTERY LEVEL IN THE PRE-TEST AND THE POST-TEST OF FOLLOW-UP PROGRAMME

OBSERVATIONS:

The above graph shows an increase in the percentage of students achieving mastery level in all the five competencies. A maximum increase in percentage of students achieving mastery level is in competency 3.1.3. The least increase is in competency 8.1.1. In all the competencies, more than 50% of the students have achieved mastery level. The graph proves that the 'Follow-up programme' is effective.
FIGURE 10

COMPARISON OF THE MEAN OF THE PRACTICAL, ORAL AND WRITTEN SECTIONS OF THE COMPETENCY-BASED PRE-TEST AND COMPETENCY-BASED POST-TEST OF FOLLOW-UP PROGRAMME

OBSERVATIONS:

The above graph shows that the mean in all the three sections of the competency-based tests: - Practical, Oral and Written are greater in the post-test when compared with the respective mean of the three sections in the pre-test.

This means that the "Follow-up programme" is useful in improving the achievement level of the students in all the three sections of the competency-based test.

Having analysed the data now let us test each of the objectives of the research study.
5.3 TESTING OF OBJECTIVES:-

5.3.1 Objective 1:-
To survey the existing teaching-learning and evaluation situation in schools regarding the competency-based curriculum adopted in primary education.

Realisation of the objective: -
For realisation of the objective following tool was prepared: -
Questionnaire (Appendix B) → Realisation of specific objective (i) (Chapter I-pg.23.)
The questionnaire was used to find out information regarding the existing teaching-learning and evaluation situation concerning the competency-based curriculum adopted in primary education.

The main observations after analysis of the responses showed:
- Majority of teachers agree that this curriculum will help in developing the language skills among the students, has made the teaching-learning process interesting and life-oriented, gives flexibility in planning encourages active participation of the students and emphasises on giving individual attention to the students. (Chapter V- Tables 1 to 5)
- A very large percentage of the teachers feels that one year is inadequate to develop all the competencies to Mastery level.
- Many of the teachers feel that after adopting this curriculum their clerical work has increased.
• Majority of teachers still focuses on written work in the classrooms. The teacher plays a major role giving little scope for mutual interaction.

• While evaluating the students, the teachers do not necessarily plan about giving an equal weightage to all the competencies. The frequency of testing each competency is not always planned. The evaluation procedures still focus mainly on the written tests.

• The teachers in the classrooms use very few teaching aids.

• The special efforts taken by the teachers for language development include arranging different competitions like recitation, story telling, etc.

• The teachers feel that the number of students in the classroom, the accompanying clerical work and the available time are the major difficulties faced while implementing the curriculum.

**Inference:**

The following inferences can be drawn from the above observations:

The teachers have a favourable opinion about the competency-based curriculum adopted in primary education. However, they feel that one year is not sufficient to develop all the competencies to Mastery level. Their main complain is that there is too much of clerical work involved in the process. No major changes seem to have taken place in the teaching-learning and evaluation process. The teacher has a major role to play and
written work is still the major focus. There is little opportunity
given to the students for interaction. The teachers do not use many
teaching aids to motivate the students and make them interested in
the class activities. The special efforts taken by the teachers do not
cater to all the children in the class.

Change in curriculum has not brought about any significant
change in the teaching-learning and evaluation procedures. The
teachers do not consciously focus on developing the competencies
in the students.

5.3.2 Objective 2:-

To develop and measure the effectiveness of the “Activity-based
teaching-learning and evaluation strategy”

Realisation of the objective: -

An “Activity-based teaching-learning and evaluation strategy was
prepared by the researcher. (Chapter IV)

To find out the effectiveness the following tools were prepared: -

- Competency-based pre-test and competency-based post-
test(Appendix G-1) ➔ Realisation of specific
objective (ii) (Chapter I-pg.23)

- Orientation programme for participating teachers (Appendix E)
  ➔ Realisation of specific objective (iii) (Chapter I-pg.23)

- Feedback sheet for the Orientation programme (Appendix F) ➔
  Realisation of specific objective (iv) (Chapter I-pg.23)
To find out the effectiveness, the following two Hypotheses were formulated:

1) There is no significant difference in the achievement level of the students in the English language competencies after implementation of the "Activity-based teaching-learning and evaluation strategy."

2) There is no significant difference in the achievement level in the English language competencies, between students of the experimental group and the control group.

To test Hypothesis 1, competency-based pre-test and competency-based post-test were administered to the students at the beginning and at the end of the academic year respectively from the selected schools. One division from each of the eight selected schools formed the eight experimental groups of the research study.

The analysis of the pre-test mean and the post-test mean of all the eight experimental groups showed the following: -
In all the eight experimental groups, a remarkable increase is seen in the post-test mean, when compared with their respective pre-test means. Further, this increase is found to be significant through the ‘t’ test analysis at 0.01 level. (Chapter V-Tables 9 to 16)

**Inference:**

The significant increase in the post-test mean for all the eight groups shows that the “activity-based teaching-learning and evaluation strategy” is effective in developing the English language competencies in the students. Thus, it is concluded, that the strategy had a positive influence on the achievement level of the students of all the eight experimental groups.

**Hypothesis 1,** “There is no significant difference in the achievement level of the students in the competencies after implementation of the “Activity-based teaching-learning and evaluation strategy” is hence rejected.
To test **Hypothesis 2** control group and experimental group were equated for their means on the basis of the scores obtained by the students in the competency-based pre-test. At the end of the academic year competency-based post-test was administered to both the groups. The difference between the post-test mean of the control group and the post-test mean of the experimental group was tested for their significance at 0.01 level. The analysis showed the following:

<table>
<thead>
<tr>
<th>GROUP</th>
<th>POST-TEST MEAN</th>
<th>‘t’ VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>31.24</td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>39.34</td>
<td>16.53</td>
</tr>
</tbody>
</table>

The difference between the post-test mean of the control group and the post-test mean of the experimental group is found to be significant at 0.01 level. (Chapter V - Table 19)

**Inference:**

The significant difference between the post-test mean of the control group and the post-test mean of the experimental group shows the effectiveness of the strategy over the method usually followed in the schools. Thus, we can infer that the achievement level of the students in the experimental group is higher than those in the control group. In other words, the students from the experimental group have performed better than the students from the control group.

**Hypothesis 2**, "There is no significant difference in the achievement level in the English language competencies, between the students of the control group and the experimental group" is hence rejected.
The standard deviation for all the eight experimental groups decreased during the post-test. (Chapter V-Table 17)

**Inference:**
This means that the strategy was effective for improving the achievement level of majority of the students.

The chi-square test was used to find out the answers to the specific research questions. (Chapter I-pg.24) The analysis showed no significant difference in the achievement level of students w.r.t. sex, number of students in the classroom, education of parents, income of parents and the type of family. (Chapter V-Tables 20 to 24)

**Inference:**
The results again signify the effectiveness of the “Activity-based” teaching-learning and evaluation strategy prepared by the researcher. It was useful in increasing the achievement level of the students to Mastery level irrespective of: - sex, number of students in the classroom, educational background, economic background and the type of family the students come from. In other words, the strategy is useful in increasing the achievement level of majority of the students.

The quantitative and the qualitative analysis of the responses given by the teachers showed that they had a favourable opinion regarding the strategy prepared by the researcher. (Chapter V- pgs.241 to 247). The analysis of the responses given by the
parents showed that they found the various activities useful. (Chapter V- pgs.247 to250) The only difficulty faced by the parents and the teachers was during the role-play activities.

**Inference:**

The strategy was useful from the point of view of both the participating teachers as well as the parents. The role-playing activities should be given a greater emphasis in the classroom by the teaching in the teaching-learning process.

**5.3.3 Objective 3:**

To study the development of English language competencies in the students.

**Realisation of the objective:**

For the realisation of the objective, the following tool was prepared:

- Four competency-based tests (Appendix H) — Realisation of the specific objective (vii) (Chapter I-pg.23)

Analysis of the marks obtained by the students in these four competency-based tests and the competency-based post-test was done to study the development of competencies in the students. The analysis showed the following:

- Mastery level achievement by the students was seen in the following competencies: -1.1.1, 1.1.3, 2.1.1, 2.1.3, 3.1.1, 3.1.2, 4.1.1 and 7.1.1.
More than 50% of the students had achieved mastery level in the following competencies: - 1.1.2, 2.1.2, 4.1.2, 4.1.3, 5.1.2 and 9.1.1.

Mastery level achievement by less than 50% of the students was seen in the following competencies: - 2.1.4, 3.1.3, 5.1.1, 6.1.1 and 8.1.1. (Chapter V – Figure 2)

**Inference:**

It is possible to develop all the competencies to mastery level. The competencies relatively easier for the students to achieve to the mastery level are 1.1.1, 1.1.3, 2.1.1, 2.1.3, 3.1.1, 3.1.2, 4.1.1 and 7.1.1.

The students were very good at listening with understanding to simple, familiar and popular rhymes, poems and tales (1.1.1). In this stage of development, it is generally observed that the children are fond of and interested in listening to songs and stories. This shows that if activities are organised and conducted in which the students are interested they perform better.

The results show a positive influence of nursery training on the achievement level of students. The students are good at understanding oral requests and simple instructions in familiar situations (1.1.3), repeating sentences correctly (2.1.1), answer simple questions (2.1.3) recognize common letters of alphabet in combinations and singly and read large print and handwriting (3.1.1 and 3.1.2) and good at copying the letters of alphabet
A higher percentage of students achieving mastery level in competency 7.1.1 shows the effectiveness of the use of pictures and other teaching aids in the teaching-learning process.

Competencies where more attention and relatively more practice seem necessary for the students to achieve them to mastery level are 2.1.4, 3.1.3, 5.1.1, 6.1.1 and 8.1.1. This points out the fact that the teachers should give more opportunity to the students to ask questions (2.1.4), encourage attentive reading (3.1.3 and 5.1.1), give more practice in grammar work through activities (6.1.1) and maximum opportunities for interaction and using the language. (8.1.1)

5.4 MAJOR FINDINGS:-

Following are the main findings of the research study:

5.4.1 SURVEY FINDINGS:-

- The teachers have a positive opinion of the competency-based curriculum adopted in schools. But at the same time they feel that one academic year is insufficient to develop all the competencies to mastery level in the students.
- The teacher has a major role to play in the classrooms and make less use of the teaching aids.
- The focus of teachers in classroom teaching-learning and evaluation is still on the written work.
- The special efforts taken by the teachers for language development do not cater to all the students in the class.
The major difficulties faced by the teachers while implementing the competency-based curriculum are the number of students in the classroom and the amount of clerical work involved.

5.4.2 FINDINGS FROM THE EXPERIMENT:-

- The teachers had a favourable opinion about the orientation programme conducted by the researcher.
- The orientation programme was effective.
- The strategy was found to bring about a significant improvement in the students from all the eight experimental groups. This is evident from the significant difference obtained between the pre-test mean and the post-test mean of all the eight experimental groups.
- The great difference between the pre-test mean and the post-test mean signifies the fact that language learning is very rapid in this stage of development.
- The deviation from the mean in the post-test decreased in all the experimental groups. This shows that the achievement of majority of the students had improved. In other words, the performance of all the students had improved towards the end of the experiment.
- The chi-square test showed that there was no significant difference in the achievement level of the students w.r.t sex, income of parents, education of parents, students coming from joint or nuclear families and the number of students in the classroom. This shows that the strategy was useful for all...
students irrespective of sex, economic class, educational background, type of family as well as the total number of students in the classroom.

- The results of the four competency-based tests and the competency-based post-test show that 1.1.1, 1.1.3, 2.1.1, 2.1.3, 3.1.1, 3.1.2, 4.1.1 and 7.1.1 are the competencies in which maximum students achieve mastery.

- The results of the four competency-based tests and the competency-based post-test show that 2.1.4, 3.1.3, 5.1.1, 6.1.1 and 8.1.1 are the competencies, which need to be, given more attention by the teachers.

- The main difficulties faced by the teachers while implementing the strategy were maintaining the individual records of the students after conducting the competency-based tests.

- The participating teachers felt that a detailed plan, a variety of practical, oral and written activities and language games were the new aspects of the strategy.

- Majority of the parents found it difficult to conduct role-play activities at home. The activities like preparation of flash cards, alphabet cards, sticking pictures, identifying alphabet and words from newspapers and magazines language games were enjoyed by the parents.

- The experiment also brings out the importance of a followup programme for improving the performance and facilitating the progress of the students.
5.5 CONCLUSIONS:

The following conclusions can be derived from the research study:

5.5.1 CONCLUSIONS FROM THE SURVEY:

- The teachers have a positive opinion of the competency-based curriculum adopted in schools.
- According to the teachers, the main hurdles in the implementation of the competency-based curriculum are the number of students in the classroom, the amount of clerical work involved and the available time at disposal.
- The teacher has a major role and there is little scope for interaction among the students. The involvement of students is very less in the classrooms.
- There is still a great emphasis on the written work in the teaching-learning and evaluation adopted in schools.
- The teachers take no specific conscious efforts for language development of the students.

5.5.2 CONCLUSIONS FROM THE EXPERIMENT:

- The English language competencies can be developed in the students of std. 1 through proper training.
- The "activity-based" teaching-learning and evaluation strategy prepared by the researcher was effective.