5.0 INTRODUCTION

The present study is experimental nature the analysis involve pre test-post test design. The study aims to find out the effectiveness of the strategies in terms of learning outcomes. The analysis involves the data in terms of achievement test. The data for objective to find the effectiveness of software in terms of learning achievement are analyzed using significance mean difference between pretest and post test scores of control and experimental groups. The response scores of students, teachers and teacher educators (resource persons) towards MMLP software are analyzed in terms of following three categories;

i) User friendly
ii) Flexibility
iii) Acceptance of the software

The response scores are analyzed with the help of graphical representations using percentage analysis.

5.1 Analysis of significance of mean difference between pre test and post test scores:

The following details are analysis for the objective III. To find the effectiveness of using evolved software for class room teaching.

Null Hypothesis-1: There is no significant mean difference between the pre test scores of control group and experimental group.

Table-5.1.1: Significant mean difference between Experimental and Control groups with respect to Pre-test scores:
The above table shows that, the computed t-value is (1.91) is smaller than the tabled t-value (2.021) with df 78 at 0.05 level of significance. The null hypothesis is accepted and there is no significant difference between the mean scores of control group and experimental group. The interpretation is that the conventional group and experimental group do not significantly differ on pre test scores.

**Null Hypothesis-2:** There is no significant mean difference between the post test achievement scores of control group and experimental group.

**Table-5.1.2:** Significant mean difference between Experimental and Control groups with respect to Post-test scores:

<table>
<thead>
<tr>
<th>Post test Scores</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Obtained t-value</th>
<th>Table t-value</th>
<th>los</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group</td>
<td>40</td>
<td>23.62</td>
<td>4.43</td>
<td>1.91</td>
<td>2.021</td>
<td>0.05</td>
</tr>
<tr>
<td>Expt. Group</td>
<td>40</td>
<td>25.55</td>
<td>4.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

df=N-2=80-2=78  NS*=Not significance

The above table shows that, the computed t-value is (5.39) is smaller than the tabled t-value (2.021) with df 78 at 0.05 level of significance. The null hypothesis is rejected and there is no significant difference between the mean scores of control group and experimental group. The interpretation is that the conventional group and experimental group significantly differ on post test achievement scores.
5.1.1 Findings:

The above null hypothesis testing rephrased to research hypothesis provide following findings.

The two equated groups are treated with traditional treatment and another with experimental treatment. The group having instruction with CA-MMLP software achieved significantly high scores and found to be effective compared with conventional group.

5.2 Analysis of Teachers Responses towards MMLP software in terms of three categories of user friendly, flexibility and acceptance.

5.2.1 Analysis of Teachers Response scores towards software in terms of user friendly

The objective3 is to find the quality of software in terms of its user friendliness and acceptance by teachers and learner

Table-5.2.1: Teachers responses towards software in terms of user friendly
The above graph shows the teachers responses. 21% of teachers responded as strongly agree, 79% of teachers responded as Agree towards user friendly of the software. It means that all teachers were positive opinion towards MMLP software and it is extremely user friendly.

5.2.2 Analysis of Teachers response scores towards software in terms of flexibility:

Table-5.2.2: Teachers responses towards software in terms of flexibility

<table>
<thead>
<tr>
<th>Responses</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>DA</th>
<th>SDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>19%</td>
<td>91%</td>
<td>00%</td>
<td>00%</td>
<td>00%</td>
</tr>
</tbody>
</table>

Graph-5.2.2: Teachers responses towards flexibility of the software:
The above graph shows the teachers' responses. 19% of teachers responded as strongly agree, 81% of teachers responded as Agree towards flexibility of the software. It means that all teachers were positive opinion towards MMLP software and it is flexible to the users.

5.2.3 Analysis of Teachers Response scores towards software in terms of software acceptance

Table-5.2.3: Teachers responses towards software in terms of acceptance

<table>
<thead>
<tr>
<th>Responses</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>DA</th>
<th>SDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>27%</td>
<td>73%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Graph-5.2.3: Teachers responses towards acceptance of the software:
The above graph shows the teachers responses. 27% of teachers responded as strongly agree, 73% of teachers responded as Agree towards flexibility of the software. It means that all teachers were positive opinion towards MMLP software and it is highly acceptance from the teachers.

5.3  Analysis of Students Responses scores towards software in terms of three categories of user friendly, flexibility and acceptance

5.3.1  Analysis of Students Responses scores towards software in terms user friendly

Table-5.3.1: Students responses towards software in terms of user friendly

<table>
<thead>
<tr>
<th>Responses</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>DA</th>
<th>SDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>47%</td>
<td>50%</td>
<td>03%</td>
<td>00%</td>
<td>00%</td>
</tr>
</tbody>
</table>

Graph-5.3.1: Students responses towards user friendly of the software:
The above graph shows the students responses. 47% of students responded as strongly agree, 53% of students responded as Agree towards flexibility of the software and 3% of students responded as neutral. It means that 97% of students were positive opinion towards MMLP software and it is extremely user friendly to the students.

5.3.2 Analysis of Students Response scores towards software in terms flexibility

Table-5.3.2: Students responses towards software in terms of flexibility

<table>
<thead>
<tr>
<th>Responses</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>DA</th>
<th>SDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>40%</td>
<td>58%</td>
<td>02%</td>
<td>00%</td>
<td>00%</td>
</tr>
</tbody>
</table>

Graph-5.3.2: Students responses towards flexibility of the software:
The above graph shows the students' responses. 40% of students responded as strongly agree, 58% of students responded as Agree towards flexibility of the software and 2% of students responded as neutral. It means that 98% of students were positive opinion towards MMLP software and it is flexible to the students.

5.3.3 Analysis of Students' Response scores towards software in terms of acceptance

Table-5.3.3: Students' responses towards software in terms of acceptance

<table>
<thead>
<tr>
<th>Responses</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>DA</th>
<th>SDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>43%</td>
<td>57%</td>
<td>00%</td>
<td>00%</td>
<td>00%</td>
</tr>
</tbody>
</table>

Graph-5.3.3: Students' responses towards acceptance of the software:
The above graph shows the students responses. 43% of students responded as strongly agree, 57% of students responded as Agree towards flexibility of the software. It means that 98% of students were positive opinion towards MMLP software and it is acceptable by the students.

5.4 Analysis of Resource (Teacher Educator) person response scores in terms of three categories of user friendly, flexibility and acceptance.

5.4.1 Analysis of Resource (Teacher Educator) person response scores towards software in terms user friendly

Table-5.4.1: Resource person (Teacher Educator) responses towards software in terms of user friendly

<table>
<thead>
<tr>
<th>Responses</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>DA</th>
<th>SDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>82%</td>
<td>18%</td>
<td>00%</td>
<td>00%</td>
<td>00%</td>
</tr>
</tbody>
</table>

Graph-5.4.1: Teacher educators’ responses towards user friendly of the software:
The above graph shows the resource persons responses. 82% of resource persons responded as strongly agreed, 18% of resource persons responded as Agreed towards user friendly of the software. It means all resource persons were positive opinion towards MMLP software and it is user friendly to them.

5.4.2 Analysis of Resource (Teacher Educator) person response scores towards software in terms flexibility

**Table-5.4.2: **Resource person (Teacher Educator) responses towards software in terms of flexibility

<table>
<thead>
<tr>
<th>Responses</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>DA</th>
<th>SDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>85%</td>
<td>15%</td>
<td>00%</td>
<td>00%</td>
<td>00%</td>
</tr>
</tbody>
</table>

Graph-5.4.2: Teacher educators’ responses towards flexibility of the software:
The above graph shows the resource persons responses. 85% of resource persons responded as strongly agreed, 15% of resource persons responded as Agree towards user friendly of the software. It means all resource persons were positive opinion towards MMLP software and it is flexible to them.

5.4.3 Analysis of Resource (Teacher Educator) person response scores towards software in terms acceptance

Table-5.4.3: Resource person (Teacher Educator) responses towards software in terms of acceptance:

<table>
<thead>
<tr>
<th>Responses</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>DA</th>
<th>SDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>85%</td>
<td>15%</td>
<td>00%</td>
<td>00%</td>
<td>00%</td>
</tr>
</tbody>
</table>

Graph-5.4.3: Teacher educators’ responses towards acceptance of the software:
The above graph shows the resource persons responses. 77% of resource persons responded as strongly agreed, 23% of resource persons responded as Agreed towards user friendly of the software. It means all resource persons were positive opinion towards MMLP software and it is highly acceptable by resource persons.

5.5 Analysis of Students learning competency

5.5.1 Analysis of Students response scores towards learning competency

Table-5.5.1: Student Responses towards software in terms of learning competency

<table>
<thead>
<tr>
<th>Responses</th>
<th>SA</th>
<th>A</th>
<th>NS</th>
<th>DA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>40%</td>
<td>58%</td>
<td>02%</td>
<td>00%</td>
</tr>
</tbody>
</table>

Graph-5.5.1: Students responses towards learning competency:
The above graph shows about the students learning competency; 40% of students responded strongly agreed, 58% of students responded Agreed and 2% of students responded as not sure. It means that 98% of students were positive opinion towards MMLP and developed computer learning competency among the students.

5.6 FINDINGS OF THE STUDY

The data collected through the experiment design and tools have been tested through statistical techniques. The analysis has provided following findings. In the present study for this purpose the unit taught is from History, topic of social science subject for the ninth standard.

1. The software id found to be effective for class room teaching in terms of achievement.
2. The evolved software MMLP is found to be user friendly, and acceptable by teachers to use in school for teaching.
3. The evolved software MMLP is found to be user friendly, flexible and accepted by Teachers to use in school for teaching.
4. The evolved software MMLP is found to be user friendly, flexible and accepted by learners to use as support self learning material.
5. The evolved software MMLP is found to be user friendly, flexible and acceptable by teacher educators as pedagogic material.
6. CHAPTER-VI

7. SUMMARY AND CONCLUSION

8.

9. 6.0 Introduction
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11. 6.2 Significance of Study
12. 6.3 Title of the Study
13. 6.4 Objectives of the Study
14. 6.5 Research Hypotheses
15. 6.6 Operational Terms Used in the Study
16. 6.7 Review of Related Literature
17. 6.8 Software Products
18. 6.9 Methodology
19. 6.9.1 Phase-I: Development CAI Multimedia Learning Programme
20. 6.9.2 Phase-II: Internal Validation
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24. 6.12 Selection of Tool and Development of Tools
25. 6.13 Pre Experimental Operations
26. 6.14 Experimentation
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28. 6.16 Analysis and Interpretation of Data
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31. 6.19 Educational Implications
32. 6.20 Conclusion
33. 6.21 Suggestions for Further Studies
34. 6.22 Contributions of the Study
CHAPTER-VI
SUMMARY AND CONCLUSION

6.0 INTRODUCTION

Education is a child centered activity; child can think on the basis of their ability and consciously process the material given to them to construct the learning experiences. Multimedia provides immense opportunity to rebuild through variety of organized material that can be provided. Multimedia programmed learning material is hardly new or revolutionary. However the computer based presentation and the new avenues have added dimension to the multimedia. It is an effective innovation in teaching learning process & is highly individualized. As teaching material it is systematic and is found quite useful for classroom instruction as well as self learning.

Historically multimedia is used in Indian context through low cost multimedia material. In last two decades efforts are made to develop and provide materials that are related to content of school curriculum but not as an integrated format Attempts are also made to develop materials that are programmed as closed system with all the inputs built in modular from. In the era of constructive pedagogy the knowledge assimilation needs to be an open system with freedom to integrate the knowledge from various sources as well to develop their own strategy of learning. There is a need to work out some experiment in this direction.

The researcher has browsed some of the researchers available from past and has noted the development. Some of the studies that bear important implications are noted in the proposal study.

6.1 MULTIMEDIA DEVELOPMENT

Multimedia development in the area of education grown over late fifty years The researcher and scientific interventions that have brought progress to this day are worth to study,

The term multimedia means different things to different people. For some people, multimedia means that a person sits at a computer terminal and receives a presentation consisting of on-screen text, on screen graphics or animation, and sounds coming from the computer’s speakers- as with an on-line multimedia encyclopedia.
For some people, multimedia means a “live” presentation in which a group of peoples seated in room views images presented one or more screens and hears music or other sounds presented via speakers. Watching a video on a TV screen can be called a multimedia experience because both images and sounds are presented. Another example of multimedia is a PowerPoint presentation in which someone presents slides from a computer projected onto a larger screen and talks about each one. Even low tech environments allow for multimedia, such as a “chalk and talk” presentation in which someone writes or draws on a blackboard or uses an overhead projector while presenting a lecture. Finally, the most basic form of multimedia is a text-book lesson consisting of printed text and illustrations. Is multimedia a noun or an adjective? When used as a noun, multimedia refers to a technology for presenting material in both visual and verbal forms. In this sense, multimedia means “multimedia technology”- devices used to present visual and verbal material. When used as an adjective, multimedia can be used in the following contexts:

Multimedia learning is learning from words and pictures, Multimedia message or multimedia presentation is presentation involving words and pictures. Multimedia and instructional message or multimedia instructional presentation (or multimedia instructions) are presentation involving words and pictures that is intended to foster learning. (Mayer, 2001)

6.2 SIGNIFICANCE OF STUDY

In the Indian context the development of multimedia can be traced from the past fifty years. Study at Center of Advance Study in Education as reported in the All India Educational Survey provide ample evidence in this direction. Studies under taken by Ravindranath M, J. R. Govinda, SS Krishnan, M. M Mukhopadyoya, Bhat V.D, M B Menon, are the worth mentioning. The UNESCO work of Prof SS Kulkarni in this direction on development of software material in educational technology set a path way in this direction. The modules prepared under its UNESCO project provide details of multimedia material development with scientific approach specifically for third world country.

Studies undertaken by Krishnan using OHP and audio tapes was initiation towards use of hardware. Mukhopadhyya used slide and tape as an progressive technology in this direction. The UNESCO work of Prof Kulkarni is standard multimedia material with slides, tapes, text material and PLM.