CHAPTER 3
REVIEW OF THE RELATED RESEARCHES

3.1 Introduction

Review of the Related Researches gives the investigator a systematic and explicit understanding of the research methodology of completed and recorded work produced by researchers, scholars and practitioners. The Valuable information obtained in the process of review helps an investigator in the planning, selecting and developing the research design of the study vis-à-vis its tools, sample, data collection and analysis. In addition, the outcomes/ findings of the past study also provides a strong conceptual as well as research base for new studies. This chapter is concerned with the review of the past research studies, articles related to major aspects of present study.

Review of the work done implies locating, reading and summarizing objectives, methods and findings of the past researches. Review of the related literature is nothing but wide look into the past research work done in specific field. It provides information related to the type of study and type of design that may be eventually used in conducting research. Research work done in the past serve as solid foundation on which any new investigation firmly rests.

According to Walter (1983) “The related literature in any field forms the foundation, upon which all feature works will be built.”

Mouly (1964) “the review of reference literature is essential to the development of problem and derivation of the effective approach to its solution”.

According to John W. “Practically all human knowledge can be found in books and libraries. Unlike other animals that must start anew with each generation, man builds upon the accumulated and recorded knowledge of the past”.

Before taking up any kind of study, the related literature is acquired and studied to understand the problem. Review of the related researches directs the researcher in proceedings in his subject. It helps the researcher to know about the research methodology, tools and instruments, which proved to be useful and promising in the previous studies.
According to Mouly (1964), “Man is the only animal that does not have to begin new in every generation but can take advantage of the knowledge, which has accumulated through centuries.” This fact is of particular important in research which operates as a continuous function of ever closer approximation to the truth. The investigator can be sure that his/her problem does not exist in a vacuum and that considerable work has already been done on problems, which are directly related to his proposed investigation.

### 3.2 Purpose of the Review

Every investigator must know what sources are available in the field of research and how many of them are worthy enough to use. In the field of education, the investigator needs up-to-date information regarding the problem i.e. what has been thought and done in the particular area.

Good, Bar and Scates analyze the purpose of research review as follows:

- To show whether the evidence already available solves the problem adequately without further investigation and thus to avoid the risk of duplication.
- To provide ideas, theories, explanations or hypotheses valuable in formulating the problem.
- To suggest methods of research appropriate to the problem.
- To locate date useful in the interpretation of result.
- By doing review of literature carefully investigator becomes aware of the important and unimportant variables in the concerned area of research.

Thus a review of the related studies, on the whole, prepares the investigator to formulate a research problem in which conceptually and practically important variables are selected.

### 3.3. Importance of the Review

A review of related studies helps the investigator in avoiding duplication of work done earlier. Review done carefully aims at interpretation of prior studies and indicating its usefulness for the present study to be undertaken. Thus prior studies serve as the pillar for the present study. In some cases duplication or replication of
prior studies become essential. This is especially true when investigator wants to test
the validity of the earlier studies. In such a situation, too, a careful review helps the
investigator in getting acquainted with the number and nature of the studies related to
the study whose validity is being assessed at present.

A careful review of the related studies enables the investigator to collect and
synthesize prior studies related to the present study. This helps the investigator in
building a better perspective for future research. A synthesized collection of prior
studies also help the investigator to identify the significant overlap and gaps among
the prior studies.

A review enables the investigator in discovering important variables relevant to the
area of the present study. When significant variables are discovered, the relationship
among them can be identified. Subsequently, the identified relationship is
incorporated into different hypotheses. Thus, for conducting a scientific study, the
relationship between the different variables must be explored by reviewing the related
studies so that a good context may be built up for subsequent investigation.

A careful consideration of ‘recommendations for further research’ in various research
studies guides the investigator regarding the suitability of the problem and assists in
delimiting her research problem. Therefore, the investigator has tried to review the
related past studies on Learning Packages to benefit her in the above mentioned ways.

3.4. Review of the Related Research Studies

For convenience, the investigator has divided the studies into the following
categories:

3.4.1 Review of Past Studies
   3.4.1.1 Review of Related Studies - Ph.D. Level

3.4.2 Review of Research Articles/Papers
   3.4.2.1 Review of Research Articles in Journals
3.4.1 Review of Past Studies

3.4.1.1 Review of Related Studies at Ph.D. Level

Table: 3.1

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Statement of the Problem</th>
<th>Name of Researcher/s</th>
<th>University/place</th>
<th>Year</th>
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<tr>
<td>1</td>
<td>Preparation and try-out of Units of Instructional material in Gujarati subject of standard VIII</td>
<td>Upadhyay, I. J.</td>
<td>Sardar Patel University, Vidyanagar</td>
<td>1969</td>
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<tr>
<td>2</td>
<td>To study the effectiveness of preparing instructional material on the difficult topic on the subject of Arithmetic of standard X on educational achievement</td>
<td>Kazi, M.M.</td>
<td>Saurashtra University</td>
<td>1987</td>
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<td>3</td>
<td>Preparation and try-Out of Instructional Material teaching Grammar in the subject of Sanskrit at class VIII</td>
<td>Patel, K.S.</td>
<td>Sardar Patel University, Vidyanagar</td>
<td>2000</td>
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<td>4</td>
<td>Effectiveness of games, work-card and self instructional material on English language learning</td>
<td>Acharya, M.D.</td>
<td>Saurashtra University</td>
<td>2005</td>
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<td>5</td>
<td>Preparation and try-out of Self Instructional material for the teaching of Gujarati grammar at standard VIII</td>
<td>Parmar, D. R.</td>
<td>Sardar Patel University V.V.Nagar</td>
<td>2006</td>
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<td>6</td>
<td>A study of the development and effectiveness of self-learning material for teaching of Gujarati grammar included in curriculum of std. VIII in context of certain variables</td>
<td>Parmar, Y. R.</td>
<td>Gujarat University</td>
<td>2009</td>
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<td>7</td>
<td>Construction and Effect of Competitive based teaching material in English subject</td>
<td>Raval, M. P.</td>
<td>Gujarat Vidyapeeth, Ahmadabad</td>
<td>2003</td>
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<td>No.</td>
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<td>8</td>
<td>The role of CAI in supporting fifth-grade Mathematics instruction: Cognitive and attitudinal outcome</td>
<td>Mehta, P.R Niederhauser D.S</td>
<td>Saurashtra University</td>
<td>1994</td>
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<td>9</td>
<td>Effectiveness of computer. Assisted Instruction in Mathematics among B.Sc. Degree Students</td>
<td>Jothkani, N.</td>
<td>Saurashtra University</td>
<td>2004</td>
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<td>10</td>
<td>Development and Implementation of Computer Assisted Instructional Package for Teaching Science to the Students of Standard IX</td>
<td>Joan Silvia Solomon</td>
<td>Ganpat University, Kherva</td>
<td>2010</td>
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<td>11</td>
<td>Effectiveness of Computer Assisted Learning as a technique of Self Study</td>
<td>Kariya, L.H.</td>
<td>Sardar Patel University, Vidyanagar</td>
<td>2001</td>
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<tr>
<td>12</td>
<td>Effectiveness of computer assisted learning material (CALM) in science subject for class VIII students</td>
<td>Macwana, S.B.</td>
<td>S.P. University</td>
<td>2009</td>
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<td>13</td>
<td>A study the effectiveness of Construction of Multimedia method on the unit of ‘Light’ on the subject science of standard Eight</td>
<td>Solanki, A.G.</td>
<td>Saurashtra University</td>
<td>1993</td>
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<td>14</td>
<td>A Study of achievement test of mathematics subject of Standard -9 with reference to main and supportive assignment method of self-study, literature, tap-slide programme and educational game</td>
<td>Dave, P.N.</td>
<td>Saurashtra University</td>
<td>1997</td>
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<td>15</td>
<td>A study of Effectiveness of Teaching Aids based Mathematics teaching at primary level</td>
<td>Ramanuj, B.B.</td>
<td>Saurashtra University</td>
<td>2001</td>
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<td>16</td>
<td>An Evaluation of effect of Teaching Aids used in Teaching of Hindi in</td>
<td>Parmar, A. M.</td>
<td>Ganpat University,</td>
<td>2010</td>
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<td>18</td>
<td>Development of multi-media package for teaching a course on audio-visual education</td>
<td>Krishnan, S. S.</td>
<td>M.S. University</td>
<td>1983</td>
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<td>19</td>
<td>Development of a multimedia package on the subject English of Std. VII</td>
<td>Desai, P.D.</td>
<td>Saurashtra University</td>
<td>1987</td>
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<td>20</td>
<td>Development and effectiveness of the multimedia package on the units of science subject of primary school</td>
<td>Patel, D.S.</td>
<td>South Gujarat University</td>
<td>1997</td>
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<td>21</td>
<td>Construction of a multimedia package on various units of std. IX of science subject</td>
<td>Bhutak, H.</td>
<td>Saurashtra University</td>
<td>2004</td>
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<td>22</td>
<td>Construction of a multimedia package and its effectiveness in maths teaching of std. VII</td>
<td>Patel, M.</td>
<td>Gujarat Vidyapeeth</td>
<td>2004</td>
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<td>23</td>
<td>A study on problems and difficulties in learning Hindi by the Telugu students in Andhra Pradesh</td>
<td>Chinnappa</td>
<td>Andhra Pradesh University</td>
<td>1978</td>
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<td>24</td>
<td>Development of learning package on population education and to study its effectiveness</td>
<td>Nanavati</td>
<td>Kamraj Madurai University</td>
<td>1981</td>
</tr>
</tbody>
</table>
Study 1
Preparation and try-out of Units of Instructional material in Gujarati subject standard VIII

Name of researcher : Upadhyay, I. J.
Name of University : Sardar Patel University, Vidyanagar
Year : 1969

Objectives of the study
1) To select and prepare Units of Instructional material with reference to the subject of Gujarati of standard VIII.
2) To teach by using the useful teaching units by unit plan and to note the result of the teaching.
3) To prepare a model for the collection of managed Units with reference to the subject of Gujarati of standard VIII.
4) To provide motivation for the teachers for the collection of managed Units with reference to the subject of Gujarati of standard VIII.

Research Method
Researcher adopted experimental design.

Findings of the study
Findings of the study revealed that By using the collection of managed Units students were benefited to get the proper understanding of the topic of useful teaching material. Other skills are also developed by using collection of managed Units to get the proper understanding of the topic of useful teaching material. Skill of presentation of students developed by using collection of managed Units to get the proper understanding of the topic of useful teaching material. Teaching becomes more effective by using collection of managed Units to get the proper understanding of the topic of useful teaching material.

Study 2
To study the effectiveness of preparing instructional material on the difficult topic on the subject of Arithmetic of standard X on educational achievement.

Name of researcher : Kazi, M.M.
Name of University : Saurashtra University
Year : 1987
Objectives of the study

1) To decide the level of difficulty of the discriminative value of the each topic of the curriculum of the Arithmetic of standard X.
2) To conclude and decide the topic by according to the order of highest discriminative value of the each topic of the curriculum of the Arithmetic of standard X.
3) To prepare an educational instructional material on the selected topic by for each topic of the curriculum of the Arithmetic of standard X.
4) To study the effectiveness of educational instructional material on the difficult topic on the subject of Arithmetic of standard X on educational achievement.

Population and sample of the study
Researcher selected students of standard X from the school of Rajkot city and from the village of Padghari were considered as the population of the study. Total 100 students were selected randomly and total 30 teachers were selected teaching arithmetic in standard X as the purposive sampling for the research purpose,

Tools used for the study
Researcher collected data using Check-List, Questionnaire, Score on Achievement Test.

Research Method
Researcher adopted survey method.

Analysis of Data
Researcher analyzed data using ANCOVA.

Findings of the study
Findings of the study revealed that in the curriculum of arithmetic of standard X total eleven topics were covered, among them Kramchay and Sanchay Volume, two topic were found most difficult according to difficulty value, among them Kramchay and Sanchay was found most difficult according to difficulty value of total eleven topic curriculum of arithmetic of standard X. Mean score on Achievement test of Instructional Material were significantly found higher than traditional method of teaching Kramchay and Sanchay topic of curriculum of arithmetic of standard X.
Study 3
Preparation and try-Out of Instructional Material teaching Grammar in the subject of Sanskrit at class VIII.

Name of researcher : Patel, K. S.
Name of University : S.P. University
Year : 2000

Objectives of the study
1) To design a programme for prepare an Instructional material for teaching Sanskrit Grammar at class VIII.
2) To prepare an Instructional Material for the selected unit for teaching Sanskrit Grammar at class VIII.
3) To construct an Achievement test for the evaluation of Instructional Material for the selected unit for teaching Sanskrit Grammar at class VIII.
4) To check the effectiveness of Instructional Material for the selected unit for teaching Sanskrit Grammar at class VIII.

Tools used for the study
Researcher collected data using Achievement Test

Research Method
Researcher adopted Experimental Method.

Major Findings of the study
Findings of the study revealed that traditionally students learning Sanskrit grammar, that’s reason there is curiosity found among the students through learning change of new method. Students learn and improve their ability to learn according to their ability of understanding level of the subject. Through Educational experiment of using Instructional Material students can understand to the topic and them reaction towards learning found positive. Student’s reaction towards using educational aids like charts, lash cards and students were found positive.
Study 4

Effectiveness of games, work-card and self instructional material on English language learning.

Name of researcher : Acharya, M. D.
Name of University : Saurashtra University, Rajkot
Year : 2005

Objectives of the study
1) To compare the effectiveness of games, work-card and self instructional material on English language learning in terms of achievements of students on English.
2) To study the effects of opinions of the students on the games, work-card and self instructional material on English language learning with reference to their learning experiences.

Population and sample of the study
Researcher selected 180 students studying in standard IX of Gujarati medium school of Adarsh High School of Kadi, out of 180 students 146 were selected randomly as the sample for the study.

Tools of the study
Researcher collected data using teacher made test and open ended questionnaire.

Research method
Researcher adopted experimental design.

Analysis of Data
Researcher analyzed data using t-test, F-Test and Chi-Square statistical.

Findings of the study
Findings of the study revealed that there was no any significant difference found among the achievements of the students of the three selected groups studying through games, work-card and self learning material, while the replication of the experiment shown that there was trend towards the games approach. In order to work-card, the game approach prove highly effective than work card and self instructional material are rather equal. This result also favors the replications of the experiment in terms of experimenter’s trainings. The student’s opinions for the characteristics of the games,
work card and self learning approach showed that students favored the learning experience provided during the teaching through the games approach to ELT. The students also liked work cards and self instructional material approaches of ELT.

**Study 5**

**Preparation and try-out of Self Instructional material for the teaching of Gujarati grammar at standard VIII**

Name of researcher : Parmar, D. R.
Name of University : Sardar Patel University, Vidyanagar
Year : 2006

**Objectives of the study**

1) To select and prepare a programme learning material for the Gujarati grammar at standard VIII.

2) To compare the educational Achievement of students with reference to Traditional Method of teaching and Teaching through Programme Learning Material.

3) To prepare a post test after treatment of experiment on the selected group of students.

**Population and sample of the study**

Researcher selected Students of the Gujarati medium Class VIII as the population of the study. Total 98 students studying during the year of 2004-05, were selected as the sample of the study.

**Tools used for the study**

Researcher collected data using Achievement Test.

**Research Method**

Researcher adopted Experimental Method.

**Analysis of Data**

Research analyzed data using t-test.

**Findings of the study**

Findings of the study revealed that Mean score of the experimental group teaching through the Programme Learning are found significantly higher than the traditional
method of teaching in the subject of Gujarati Grammar of Standard VIII. Mean score of the boys of experimental group teaching through the Instructional Material of Programme Learning are found significantly higher than the boy’s traditional method of teaching in the subject of Gujarati Grammar of Standard VIII. Mean score of the girls of experimental group teaching through the Instructional Material of Programme Learning are found significantly higher than the girl’s traditional method of teaching in the subject of Gujarati Grammar of Standard VIII. Mean score of the urban area of experimental group teaching through the Instructional Material of Programme Learning are found significantly higher than the urban area traditional method of teaching in the subject of Gujarati Grammar of Standard VIII. Mean score of the rural area of experimental group teaching through the Instructional Material of Programme Learning are found significantly higher than the rural area traditional method of teaching in the subject of Gujarati Grammar of Standard VIII.

Study 6

A study of the development and effectiveness of self-learning material for teaching of Gujarati grammar included in curriculum of std. VIII in context of certain variables

Name of researcher : Parmar, Y. R.
Name of University : Gujarat University
Year : 2009

Objectives of the study

Following objectives were set for the research:

(1) To develop self-instructional material to teach selected units from Gujarati grammar of std. VIII.
(2) To study the effectiveness of self-instructional material and traditional method with respect to students achievement.
(3) To check the effect of I.Q. on the achievement of the experimental group.
(4) To check the effect of gender on the achievement of the experimental group.
(5) To check the effect of SES on the achievement of the experimental group.
Research Method

The experimental method was used as a research method.

Tools for data collection

Following tools were used for data collection.
(1) Pre-test (2) Unit Test (3) Post-test (Achievement test) (4) Retention Test
(5) Opinionnaire (6) Socio Economic Scale (7) Intelligence Test

Data Analysis

Investigator was used t-test and chi-square techniques for analysis of the data.

Findings of the study

Findings of the Research were:
The mean achievement of rural and urban students who are studied through self instructional material was better than the traditional method. The self-instructional material has similar effect on both the High I.Q. level students and low I.Q. level students. The achievement of the High SES students when studied through self-instructional material was found higher than the low SES students. The achievement of the girls who studied through self instruction material was found higher than the girls of control group. The achievement of the boys from rural and urban area, who studied through self-instruction material, was found higher than the control group students.

Study 7

Construction and Effect of Competitive based teaching material in English subject.

Name of researcher : Raval, M. P.
Name of University : Gujarat Vidyapeeth, Ahmadabad
Year : 2003

Objectives of the study

1) To select and prepare a Competitive based teaching material in English subject on the selected units of English.
2) To construct and standardize the pre-test of Competitive based teaching material in English subject.
3) To compare the educational Achievement of students with reference to Traditional Method of teaching and Teaching through Competitive based teaching material in English subject.
4) To evaluate the material of Competitive based teaching in English subject.

**Population and sample of the study**
Researcher selected English subject Students of the Class VII of Ahmadabad district were comprise as the population of the study. Total students of four primary school studying during the year of 2002-2003, were selected as the sample of the study.

**Tools used for the study**
Researcher adopted Instructional Material in the Subject Competitive based teaching in English subject and Score on Achievement Test.

**Research Method**
Researcher adopted Experimental Method.

**Analysis of Data**
Researcher collected data using pre-test and post-test,

**Data Analysis Technique**
Researcher analyzed data using 2X2X2 factorial experimental design.

**Findings of the study**
Findings of the study revealed that Mean score of the experimental group teaching through the Teaching through Competitive based teaching material in English subject are found significantly higher than the traditional method of teaching in the subject of English of Standard VII. Mean score of the students of private school of experimental group are found significantly higher than the control group of teaching in the subject of English of Standard VII. Mean score of the student’s male and female group of schools run by Jilla Panchayat experimental group are found same as the control group of teaching in the subject of English of Standard VII. No significant difference found on the mean score of male students on the experimental group and control group, while significant difference was shown on the mean score of experimental group with compare to control group of students. Mean score of the male students of
control group of schools run by Jilla Panchayat of are found same on the teaching in the subject of English of Standard VII, no significant difference found in their achievement. Mean score of the female students of experimental group of schools run by Jilla Panchayat of are found significant on the teaching in the subject of English of Standard VII.

**Study 8**
The role of CAI in supporting fifth-grade Mathematics instruction: Cognitive and attitudinal outcome

Name of researcher : Mehta. P. R.
Name of University : Saurashtra University
Year : 1994

Objectives of the study
To study examination of whether alternate ways of using of computer in mathematics instruction leads to different cognitive and attitudinal outcomes in students.

Tools used for the study
Researcher collected data using Pre-test and post-test, Mathematics attitude scale and Computer attitude scale

Findings of the study
Findings of the study revealed that all students made gains on the mathematics measures from pre-test to post-test. Students’ attitude towards CAI and Mathematics did not change over period of the study.

**Study 9**
Effectiveness of Computer Assisted Instruction in Mathematics among B.Sc. Degree Students

Name of researcher : Jothkani, N. and Thiagarajan, A. P.
Year : 2004

Objectives of the study
1. To analyze the efficiency of teaching mathematics to B.Sc. Degree students through CAI over conventional method for knowledge, comprehension and application objectives.
2. To compare the effectiveness of teaching mathematics through CAI to B.Sc. Degree students over conventional methods in terms of the levels of achievement.

3. To study the effectiveness of teaching mathematics through CAI to B.Sc. Degree students over conventional method in terms of objectives of teaching mathematics and their level of achievement.

Findings of the study
Findings of the study revealed that there was no significant difference between the mean scores of pre-test for control and experimental group in all six units with reference to the objectives such as knowledge, comprehension and application and their level of achievement such as low, average and high achievers. The mean scores of post-test of control group are significantly higher than that of the experimental group in all six units with reference to the objectives and their level scores of control group are significantly greater than that of experimental group in all six units with reference to the objectives and their level of achievement in both the years 1999-2000 and 2001-2002.

Study 10
Development and Implementation of Computer Assisted Instructional Package for Teaching Science to the Students of Standard IX

Name of researcher: Joan Silvia Solomon
Name of University: Ganpat University, Kherva
Year: 2010

Objectives of the study
To develop Computer-Assisted Instructional (CAI) package for teaching ‘Science and Technology’ subject to the students of Standard IX.
To study the effectiveness of CAI package in terms of academic achievement of the students in ‘Science and Technology’ subject.
To study the effectiveness of CAI package in terms of retention of the students in ‘Science and Technology’ subject.
To study the opinion of the students of experimental group towards CAI package after experiment.
To measure the practical significance of the statistical result of the study.

Research Method of the study
Researcher adopted Experimental method for the study. Two groups, randomized subject post-test-only design was used for the study.

**Sample of the study**
Researcher selected 130 students from two schools of Gandhidham and Adipur.

**Tools of the study**
Researcher collected data using Achievement test, Retention test and Opinionative.

**Techniques of the study**
Researcher analyzed data using Mean, S. D., t-test, Chi-square test and effect size.

**Findings of the study**
Findings of the study revealed that CAI was found to be more effective than conventional teaching method for teaching ‘Science and Technology’ subject to the students of Standard IX. The effect size in the present study indicates that the practical significance of the result was considerably high. Students’ opinion towards Computer Assisted Instructional Package was favorable as far as the statements related to unit test given; self-learning, content clarity and mode of presentation are covered. Incorporation of question and feedback in instructional process had a better impact. The majority of students found that the package was informative, interesting and fun to learn. The majority of the students were of the opinion that learning through CAI was more effective, in all respect, then conventional class-room teaching. Use of CAI did not cause stress in students. Majority of the students felt that CAI package should be developed for higher secondary stage too.

**Study 11**
**Effectiveness of Computer Assisted Learning as a technique of self Study**

<table>
<thead>
<tr>
<th>Name of researcher</th>
<th>Kariya L.H.</th>
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<tbody>
<tr>
<td>Name of University</td>
<td>S.P. University</td>
</tr>
<tr>
<td>Year</td>
<td>2001</td>
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Objectives of the study

1) To prepare standardize Programme Learning Material (PLM) and Computer Assisted Learning (CAL) on the unit of Introduction of Set in mathematics subject of standard eight.

2) To prepare Lesson a Plan with traditional method on the unit of Introduction of Set in mathematics subject of standard eight.

3) To study the effectiveness of Programme Learning Material (PLM), Computer Assisted Learning (CAL) and traditional method teaching on the unit of Introduction of Set in mathematics subject of standard eight.

Population and Sample
Researcher selected students studying in standard eight of Gujarati medium in Rajkot city during the year of 1999-2000. Two schools were randomly selected of secondary standard eight of Gujarati medium in Rajkot city. 64 boys were selected from the school of Mahatma Gandhiji Vidhyalaya as a main experiment group and 44 girl students were selected from the school of Gyandeep Vidhyalaya as a repetition of experiment by random sampling technique.

Tool of the study
Researcher collected data using Achievement test, Mathematical Reading-adopting Competency test

Method of the study
Researcher adopted Experimental method

Data Analysis and Interpretation
Researcher analyzed data using ANCOVA.

Findings of the study
Findings of the study revealed that Male Students were significantly found same on the Computer Assisted Learning (CAL) and traditional method teaching on the unit of Introduction of Set in mathematics subject of standard eight. Female Students were significantly found higher on the Computer Assisted Learning (CAL) than traditional method teaching on the unit of Introduction of Set in mathematics subject of standard eight. Male and female Students were significantly found higher on the Computer Assisted Learning (CAL) and Programme Learning Material (PLM) than traditional
method teaching on the unit of Introduction of Set in mathematics subject of standard eight.

Study 12

Effectiveness of computer assisted learning material (CALM) in science subject for class VIII students

Name of researcher : Macwana S.B.

Name of University: S.P. University

Year : 2009

Objectives of the study

Objectives set for the research were:

1. To develop Computer Assisted Learning Material in Science subject for class VIII Gujarati medium students.
2. To study the effectiveness of Computer Assisted Learning Material in Science subject for class VIII Gujarati medium students.
3. To study the effectiveness of Computer Assisted Learning Material in Science subject for class VIII Gujarati medium students of Experimental group with respect to Intelligence Quotient.
4. To study the effectiveness of Computer Assisted Learning Material in Science subject for class VIII Gujarati medium students of Experimental group with respect to Socio-Economic-Status.
5. To study the effectiveness of Computer Assisted Learning Material in Science subject for class VIII Gujarati medium students of Experimental group with respect to Gender.
6. To study the effectiveness of Computer Assisted Learning Material in Science subject for class VIII Gujarati medium students of Experimental group with respect to Area.

Research Method

The present study was experimental research method.

Tools for data collection

Following tools were used for data collection.
In the present study, investigator was used t- Test, ANOVA and Chi-Square for the analyze of the data.

**Findings of the study**

The results of the analysis were:

CALM was found to be an effective individualized instruction techniques in terms of students achievement for teaching science at class VIII. Student’s level of Intelligence Quotient was found to have an impact on student’s learning through CALM. Student’s Socio-Economic-Status was found to have no impact on student’s learning through CALM. The achievement scores of the Boys were not significantly different from the achievement scores of the Girls. It means that student’s gender does affect any differences on their learning through CALM. Student’s residential area did not affect on student’s achievement. Science teachers were found to have positive attitude towards the developed CALM.

**Study 13**

A study the effectiveness of Construction of Multimedia method on the unit of ‘Light’ on the subject science of standard Eight.

**Name of researcher** : Solanki ,A.G.

**Name of University** : Saurashtra University

**Year** : 1993

**Objectives of the study**

To study the effectiveness of Construction of Multimedia method on the unit of ‘Light’ on the subject science of standard Eight.

**Population and sample of the study**

Researcher selected students of standard eight from the school of Rajkot city were considered as the population of the study. Total 60 boys and 70 girl students were selected randomly from the school of Shri M.G.M. High School were selected as for the research purpose.
Tools used for the study
Researcher collected data using Film-Strip, Experimental Demonstration, Self-Learning Assignments, Charts and Models and achievement test.

Research Method
Researcher adopted Experimental Method.

Analysis of Data
Researcher analyzed data using t-test.

Findings of the study
Findings of the study revealed that, By the analysis of unit of ‘Light’ in the small and small parts in logical order by dividing in the sub units, multimedia teaching found significant with reference to selection of the Multimedia for teaching on the subject science of standard Eight. Mean score on Achievement test of Multimedia Method were found significantly higher than traditional method lecture method of teaching, and through this method mean score of boys students will be increased through this method.

Study 14
A Study of achievement test of mathematics subject of Standard -9 with reference to main and supportive assignment method of self-study, literature, tap-slide programme and educational game.

Name of researcher : Dave, P.N.
Name of University : Saurashtra University
Year : 1997

Objectives of the study
1. To construct achievement test of Set-Procedure, Trigonometry and plane quadrilateral topic in mathematics subject of standard -9 with reference to main and supportive assignment method of self-study, literature and tap-slide programme and educational game.
2. To study the effect of main and supportive assignment method of self-study, literature and tap-slide programme and educational game, on achievement test in mathematics subject of standard -9.
Population and Sample
Researcher selected 260 students of standard-9 of Forward school of afternoon shift, from Amreli district as population. From the selected standard two groups were selected in experimental group – 1 63 students were selected and in experimental group – 2 64 students were selected.

Tool used for the present study
Researcher collected data using Teacher Made Test.

Research Method
Researcher adopted experimental design

Data Analysis techniques
Researcher analyzed data using t-test.

Findings of the study
Findings of the study revealed that Self-study, literature were found significant on achievement test in mathematics subject of standard -9, while tap-slide programme and educational game has not any significant difference was found on achievement test in mathematics subject of standard -9. In the symbolic manner they are described as literature>educational games= tap-slide programme. Mean score of achievement test of students of standard-9, on educational games were found significantly higher than literature and tap-slide programme.

Study 15
A study of Effectiveness of Teaching Aids based Mathematics teaching at primary level
Name of researcher : Ramanuj, B.B.
Name of University : Saurashtra. University
Year : 2001

Objectives of the study
1) To study the effectiveness of Mathematics teaching based on Teaching Aids on score on achievement test with comparison of use of lecture method.
2) To study the effectiveness of reliability of Mathematics teaching based on Teaching Aids on score on achievement test with comparison of use of lecture method.
3) To study the effectiveness of Standard on Mathematics teaching based on Teaching Aids on score on achievement test with comparison of use of lecture method.

**Method of the study**
Researcher adopted Experimental method

**Sample of the study**
Researcher selected students from standard of 5, 6, and 7 of primary school of Gujarati medium.

**Tool of the study**
Researcher collected data using Mathematics Achievement test, Mathematics Self-Confidence Measure test and Mathematics Standard Measuring Scale.

**Data Analysis techniques**
Researcher analyzed data using t-test.

**Findings of the study**
Findings of the study revealed that Mean score of male and female students of standard 5, 6, and 7 on Mathematics teaching based on Teaching Aids were significantly found higher than the mean score on achievement test with comparison of use of lecture method. Mean score of male and female students of standard 5 and 6 were found significant on Mathematics Self Confidence Measure Test; mean score of male and female students of standard 6 and 7 were found same on Mathematics Self Confidence Measure Test. Mean score of male students of standard 5 and 6, on Mathematics teaching based on Teaching Aids were significantly found higher than the mean score on achievement test with comparison of use of lecture method, while Mean score of male students of standard 5 and 6, on Mathematics teaching based on Teaching Aids were found same with mean score on achievement test with comparison of use of lecture method. Mean score of female students of standard 5 and 6, on Mathematics teaching based on Teaching Aids were significantly found higher than the mean score on achievement test with comparison of use of lecture method, while Mean score of female students of standard 5 and 6, on Mathematics teaching based on Teaching Aids were found same with mean score on achievement test with comparison of use of lecture method.
Study 16
An Evaluation of effect of Teaching Aids used in Teaching of Hindi in standard VIII

Name of researcher : Parmar, A. M.
Name of University : Ganpat University, Kherva
Year : 2010

Objectives of the study
1) To select and prepare a teaching Aids for the Hindi Subject.
2) To compare the educational Achievement of students with reference to Traditional Method of teaching and Teaching through Teaching Aids.
3) To prepare a post test after treatment of experiment on the selected group of students.
4) To study the effect of selected Instructional Teaching Aids in the subject of Hindi of standard VIII with reference to gender of students.
5) To study the effect of selected Instructional Teaching Aids in the subject of Hindi of standard VIII with reference to area of Schools.

Population and sample of the study
Researcher selected students of the Class VIII as the population of the study. Total 120 students studying during the year of 2009-2019, were selected as the sample of the study. Present research was carried out for the Gujarati Medium Instruction only.

Tools used for the study
Researcher collected data using Instructional Material in the Subject of Hindi of standard VIII and Scores on Achievement Test.

Research Method
Researcher adopted Experimental Method.

Analysis of Data
Researcher Analyzed data using t-test.

Findings of the study
Findings of the study revealed that Mean score of the experimental group teaching through the Teaching Aids were found significantly higher than the traditional method
of teaching in the subject of Hindi of Standard VIII. Mean score of the boys of experimental group teaching through the Teaching Aids were found significantly higher than the boy’s traditional method of teaching in the subject of Hindi of Standard VIII. Mean score of the girls of experimental group teaching through the Teaching Aids were found significantly higher than the girl’s traditional method of teaching in the subject of Hindi of Standard VIII. Mean score of the urban area of experimental group teaching through the Teaching Aids were found significantly higher than the urban area traditional method of teaching in the subject of Hindi of Standard VIII. Mean score of the rural area of experimental group teaching through the Teaching Aids were found significantly higher than the rural area traditional method of teaching in the subject of Hindi of Standard VIII.

**Study 17**

**Effectiveness of multi-media programmed learning material in the teaching of physics subject**

**Name of researcher**: Basu, M.K.

**Name of University**: Cal.University W.BANGAL

**Year**: 1981

**Objectives of the study**

Following objectives were set for the research:

1. To study the effectiveness of various media of the programme on students achievement and retention.
2. To develop a multimedia programme package using each style of programme in conjunction with audio-visual media.
3. To develop the programmed learning materials on light in school physics in four different styles- multi-media semi programme, multi-media linear programme, multimedia Branching programme and multi-media Hybrid programme.
4. To study the interaction effects of instructional strategies, abilities and occasions.

**Research Method**

The experimental method was used as a research method.

**Tools for data collection**

Following tools were used for data collection.
(1) Group Test of Intelligence B.E.P.R.T.  (2) Entry level test
(3) Achievement test  (4) Retention Test

Data Analysis

In this research study, investigator was used t- Test and Analysis of Variance method for analysis of the data.

Findings of the study

The results of the analysis were:
Difference was found in the effectiveness of the various media of the programme on the achievement index of the subjects. The multi-media semi programme proved to be more effective than the linear and branching programmed. The multi-media linear programme proved to be more effective than the multi-media semi programme. The multi-media branching programme proved to be more effective than the multi-media linear programme. The multi-media Hybrid Programme proved to be more effective than the multimedia Branching programme. The methods of the multi-media programmed proved to be helpful to the subjects in reaching mastery learning level.

Study 18

Development of multi-media package for teaching a course on audio-visual education

Name of researcher : Krishnan, S. S.

Name of University : M.S. University

Year : 1983

Objectives of the study

Following objectives were set for the research:
(1) To develop a multi-media programme to teach syllabus of audio-visual teaching for trainers.
(2) To study the effectiveness of the multimedia programme in terms of achievement of trainees
(3) To study the feasibility of the multi-media programme in terms of time and cost for the instructor training programme.
For the above stated objectives an experiment was carried out on 127 trainers registered in the Central Training Institute for instructor during year 1981-82. The multi-media package included slide, programme, non-projected visual aids, self-learning material learning with instruction for use self –evaluation unit test etc.

**Research Method**

To attain the above objectives, a single group design was evolved.

**Tools for data collection**

The tools used for data collection were Criterion tests, comprehensive tests and an attitude scale prepared by the investigator and an English language ability test designed at the matriculation level.

**Data Analysis**

In the present study t- test and percentage were used for the data analysis.

**Findings of the study**

The results of the analysis were:

Ninety-eight percentage (98%) of the trainees obtained more than 80% of scores on the final post test. A positive co relation was seen between the trainer’s scores and their linguistic competence. The mean gain scores of knowledge, comprehension and higher mental abilities were found to be significant at 0.01 level. The multi-media package proved to be convenient with respect to arranging time table in real institutional structure and recycle in multi source material.

**Study 19**

**Development of a multimedia package on the subject English of Std. VII**

**Name of researcher :** Desai, P.D.

**Name of University:** Saurashtra University

**Year :** 1987

**Objectives of the study**

Following objectives were set for the research:
(1) To construct a multimedia package for selected units of std. VII in English.
(2) To check the effectiveness of the multimedia package on std. VII students.
(3) To get opinions about the multimedia package from students, teachers and experts.

**Research Method**

Pre-test-post test one group Experimental design was used for the present study.

**Tools for data collection**

Following tools were used for the present study.
(1) Pre-test (2) Post-test (3) Opinionnaire

**Data Analysis**

In the present study, investigator was used t- Test and f -Test for the analysis of the data.

**Findings of the study**

Findings of the research were:
Both in group-1 and group-2 the difference between the pre- test and post-test and pre-test retention scores was found significant of 0.01 degree. The students found the learning package very attractive. In the teacher's opinion the package was highly capable. According to the experts, the package had the capacity to be useful in learning.

**Study 20**

**Development and effectiveness of the multimedia package on the units of science subject of primary school**

**Name of researcher: Patel, D.S.**

**Name of University: South Gujarat University**

**Year** : 1997

**Objectives of the study**

Objectives set for the research were:
(1) To develop multimedia package on some units of science subject.
(2) To assess the effectiveness of the multimedia package of science subject.
**Research Method**

The present study was carried out by using experimental research method.

**Tools for data collection**

Following tools were used for data collection:
(1) Pre Test
(2) Achievement Test

**Data Analysis**

In the present study, t- Test and Analysis of Variance were used for data analysis.

**Findings of the study**

The results of the analysis were:
The multimedia package was found more effective in the primary schools managed by Jilla panchayat compared to the private primary schools. From the F value found in the Analysis of Variance of the scores of pre-test and post-test of the experimental group, it can be said that, the teaching through multimedia package was effective.

**Study 21**

**Construction of a multimedia package on various units of std. IX of science subject**

**Name of researcher**: Bhutak, H.

**Name of University**: Saurashtra University

**Year**: 2004

**Objectives of the study**

Following objectives were set for the research:
(1) To construct a multimedia package to teach various units of std. IX.
(2) To prepare a teacher made evaluation test to know students achievement Science.
(3) To assess the effectiveness of the multimedia package.
(4) To assess the comparison of the components of the multimedia package.
(5) To know the student’s opinions regarding the multimedia package.

**Research Method**

This was a pre and post-test experimental design study.
Tools for data collection

Following tools were used for data collection.
(1) Science Achievement measurement test
(2) Science Retention measurement test
(3) Opinionnaire

Data Analysis

Investigator was used t-test and Chi-square techniques for data analysis.

Findings of the study

Research Findings were:

The achievement and retention ability of the students taught through the method based on multimedia package was higher compared to those taught lecture method. The science achievement of the boys and girls taught through computer slide show and self-learning material was equal. The science achievement of boys and girls taught through self-learning material was OHP transparency. The science achievement of the boys and girls taught through computer slide show was higher compared to those taught through OHP transparency.

Study 22

Construction of a multimedia package and its effectiveness in maths teaching of std. VII

Name of researcher : Patel, M.

Name of University : Gujarat Vidyapeeth

Year : 2004

Objectives of the study

Following objectives were set for the research:
(1) To construct a test based on the selected units in maths of std. VII.
(2) To tryout a multimedia package for selected units of maths of std. VII. (3) To assess the effectiveness of the multimedia package prepared for maths with respect to the gender.
Research Method

The experimental design was used for the present study.

Tools for data collection

Following tools were used for data collection.
(1) Pre Test (2) Achievement Test (3) Questionnaire

Data Analysis

In the present study, t-test and other relevant statistical techniques were use for analysis of the data.

Findings of the study

Research Findings were:
The mean scores of the students of control group and experimental on the post test are 44.50 and 55.89 respectively. The difference between the mean scores is significant respectively. The difference between the mean scores is significant at 0.01 degree. So it can be said that the multimedia package. No significant difference was found between the mean scores of the boys and girls on the post test of experimental group students taught through multimedia package. So it can be said that the gender of students has no effect on the multimedia package. To multimedia package method found to be more effective than lecture method. The multimedia package has a higher effect on both the boys and girls of the experimental group.

Study 23

A study on problems and difficulties in learning Hindi by the Telugu students in Andhra Pradesh

Name of researcher : Chinnappa

Name of University : Andhra Pradesh University

Year of Research : 1978

Objectives of the study

(1) To survey the problems and difficulties faced by Telugu speaking students of class VIII in learning Hindi.
(2) To know the status of Hindi learning in secondary schools of Andhra region of Andhra Pradesh to know the learning.

Research Method

Survey method was used in this research for studying understanding of terms that were used in the study.

Tools for data collection

Investigator was used following tools for data collection:
(1) Questionnaire (2) Interview for teacher (3) Interview for students

Analysis of Data

In this research the data was analyze by used of t- Test.

Findings of the study

Research Findings were:
Hindi subject was not taken seriously by the State Government and was not made compulsory. Students and teachers were not clear about purpose of learning Hindi due to lack of proper environment for learning Hindi, untrained Hindi teacher and inadequacy of instructional materials etc. leads to problems for learning Hindi.

Study 24

Development of learning package on population education and to study its effectiveness
Name of researcher : Nanavati.
Name of University : Kamraj Madurai University
Year : 1981

Objectives of the study

Following objectives were set for the research:
(1) To construct a multi-media package for giving population education to standard IX students.
(2) To study the effectiveness of the multi-media package.
(3) To get students opinions regarding the multi-media package.
Research Method of the study

The present study was carried out by using experimental research method.

Tools for data collection

Following tools were used for the data collection.
(1) Achievement test  (2) Opinionnaire  (3) Film Strips

Data Analysis

In this research study, t- Test, f’ Test and Chi-Square were applied for the analyze the data.

Findings of the study

Research Findings were:
Significantly difference was found between the means scores of the experimental group and control group. The mean achievement of urban group students was high than the rural group students achievement. The students had welcomed the multi-media programme warmly.


3.4.2 Review of Research Articles/Papers

3.4.2.1 Review of Research Articles in Journals

Table: 3.2

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Title of the study</th>
<th>Researcher/s</th>
<th>Journal</th>
<th>Year</th>
</tr>
</thead>
</table>

Study-1

Multimedia Learning Packages: Design Issues and Implementation Problems

Name of Researchers : S. Manjit Sidhu & S. Ramesh
Publication Year : April 2006
Place of Publication : Maleshiya online Journal of Instructional Technology, Multimedia Unit, Malaysia

Objectives of the study

1) To develop multimedia learning packages (MLP) for students in their learning requires the exploitation of a variety of authoring tools.
2) To study the Design Issues and Implementation Problems with reference to Multimedia Learning Packages.
3) To study the effects of Multimedia Learning Packages.
Tools used for the study
Researcher collected data using Achievement score for Multimedia Learning Package (MLP) prepared for the study and perception towards Multimedia Learning Package (MLP) collected through questionnaire.

Findings of the study
Findings of the study revealed that important issue to take into account when implementing multimedia-engineering learning packages is the choice of authoring tool to use. Although the market is dominated with a variety of authoring tools such as Director MX, Flash MX and Author ware MX, yet IDEs such as C, C++ and Java could also be employed. The incorporation of multimedia in engineering learning tools provides added advantages to undergraduates and engineering trainees. Effort in developing the technology has not been matched by a similar concerned with the pedagogy, the discussion in this paper clearly shows that multimedia technology has great potential to assist learning as well as to enhanced learner visualization and understanding of concepts in mechanical engineering. Pertinent issues in design and implementation of engineering learning tools have been discussed based on three prototype engineering multimedia-learning tools covering various topics in mechanical engineering course. A problem-solving model was adopted and was found to be suitable in designing TAPS packages that allows learners to visualize a problem prior to solving it.

Study- 2
Effectiveness of computer Assisted Language Learning Package for Teaching Reading Comprehension in English.

Name of Researchers : Maheta,P.R
Publication Year : Oct 2011
Place of Publication : Research Analysis and Evaluation

Objectives of the study
The objectives of the present study were as follows:

1) To develop Computer Assisted Language Learning Package to teach reading comprehension form supplementary reader “Blackbuck”.

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2) To study the effectiveness of area for teaching comprehension through CALL package.
3) To study the effectiveness of gender for teaching reading comprehension through CALL package.
4) To compare the relative effectiveness of The CALL package and the traditional approach in terms of scores obtained by students.
5) To develop teacher made achievement test for testing academic achievement of students.

**Hypothesis of the study**
There will be no significant difference among the mean scores of the student of the two different groups (i) a group learning through CALL package (ii) a group learning through traditional approach.

**Tools used for the study**
Researcher collected data using CALL package. The package was developed by the researcher on Power Point Presentation of MS office XP. The package was developed utilizing multi-media approach. Selected reading comprehension form /Supplementary Reader book “Blackbuck” of 10th standard of English language were the course content of the package. The present study was pertaining to the areas of educational technology and language learning.

**Population and sample of the study**
Researcher selected students who were studying in the 10th standard of Gujarati Medium School of Rajkot City in the year 2009-2010 as the population. For the present study, the research selected two schools Mahatma Gandhi Educational Institute at Rajkot and Shri Ramkrushna Secondary School at Mahika by purposive sampling selecting method. The researcher selected 240 students by random sampling technique as her sample.

**Research method of the study**
Researcher selected experimental method. Pre - experimental design was used. The researcher has selected ‘static experimental group - control group, post test only
design’ for the research, Replication of the experimental was also done on the same footing on the students of other school.

**Analysis of data**
Researcher analyzed data using t-test.

**Findings of the study**
Findings of the study revealed that No significant difference between the mean scores of the X standard students of the rural and urban area. There will be no significant difference between the mean scores of the X standard boys and girls relating to reading comprehension. There was no any effect of gender on teaching methods and academic achievement of reading comprehension task package of English language in replication. There was no any effect of area on teaching methods and academic achievement of reading comprehension task package of English language. Opinions of boys and girls were favorable regarding the use of the CALL package. The students of rural area were more favorable in the comparison of the students of urban are regarding the use of the CALL package.

Thus, above section comprises of S.Manjit Sidhu & S.Ramesh (2006) clearly shows that multimedia technology has great potential to assist learning as well as to enhance learner visualization and understanding of concepts in mechanical engineering trainees. Maheta, P.R (2011) Boys and girls were favorable regarding the use of the CALL package. CALL was found superior to conventional method significantly in promoting achievement motivation. Thus, Learning Package was found more favorable to conventional method in promoting achievement motivation.

### 3.5 Distinguished Features of the Present Study

After studying and reviewing the past researches the following distinguished features were contemplated and incorporated in the present study.

1. Past researches include mainly study on learning / instructional / computer assisted / multimedia learning / self instructional material but present study includes learning package.
2. Past researches were mainly on computer assisted instruction in Maths and science subject but present study includes learning package in Hindi.
3. Past study includes t-test statistics for finding the result but present study includes F-test and Post-hoc test for finding the result.


5. Present study emphasis on developing lesson plans on Learning Package.

6. Past study includes mainly variables viz. area, gender, etc. but present study includes IQ of the students.

7. Learning tasks prepared based on Hindi language for the learners is the peculiarity of this research.

8. Students’ feedback on Learning Package were collected and analyzed.

3.6 Summary

The review of related researches on Learning Package was proved very helpful to the investigator. Past researches reveal that efforts have been made to evaluate the effectiveness of multimedia package and computer assisted instructions. Investigator couldn’t found any study related to Learning Packages in India. So this research may be helpful for exploring area like measuring and enhancing effectiveness of learning package. Learning Package would be helpful to develop comprehending, creative thinking, various skills. Next Chapter no.4 comprises of planning and procedure adopted for the present research study.