

CHAPTER II

PLAN AND PROCEDURE

CHAPTER TWO

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2.0.0 INTRODUCTION

The theoretical framework as well as the empirical support of the study has been presented in the previous chapter. The present chapter "Plan and Procedure" covers the design of the study and methodological details, such as, objectives, hypotheses, sample of the study, development of software, collection of data and, procedure for analysing data.

Also, this chapter presents a study of relative contribution of Computer Aided Learning Material (CALM) on rhymes in different modes Text (T), Text Music (TM), Graphics Text (GT), Graphics Text Music (GTM), and Graphics Text Music Recitation (GTMR) for Language learning in terms of Word meaning (Lexicon), Analytical Understanding, Comprehensive Understanding, Writing ability and Recitation ability of the rhyme and Listening Speaking Reading & Writing (LSRW) abilities.

2.1.0 OBJECTIVES OF THE STUDY

- (1) To develop Computer software on rhyme in T, GT, TM, GTM & GTMR modes
- (2) To study the effectiveness of CALM prepared in different modes for learning the rhyme in terms of Word meaning (Lexicon) of the students
- (3) To study the effectiveness of CALM prepared in different modes for learning the rhyme in terms of Analytical Understanding of the students.
- (4) To study the effectiveness of CALM prepared in different modes for learning the rhyme in terms of Comprehensive Understanding of the students.
- (5) To study the effectiveness of CALM prepared in different modes for learning the rhyme in terms of Writing ability of the students.
- (6) To study the effectiveness of CALM prepared in different modes for learning the rhyme in terms of Recitation ability of the students
- (7) To study the effectiveness of CALM prepared in different modes for learning the rhyme in terms of Language Learning of the students

2.2.0 HYPOTHESES OF THE STUDY

- Ho1 The adjusted mean of the achievement test score on Word meaning (Lexicon) of the students belonging to T, GT, TM, GTM, & GTMR modes will not differ significantly when class achievement test score in English language is considered as covariate.
- Ho2 The adjusted mean of the achievement test score on Analytical Understanding of the students belonging to T, GT, TM, GTM, & GTMR modes will not differ significantly when class achievement test score in English language is considered as covariate
- Ho3 The adjusted mean of the achievement test score on Comprehension Understanding of the students belonging to T, GT, TM, GTM, & GTMR modes will not differ significantly when class achievement test score in English language is considered as covariate.
- Ho4 The adjusted mean of the achievement test score on Writing ability of the students belonging to T, GT, TM, GTM, & GTMR modes will not differ significantly when class achievement test score in English language is considered as covariate.
- Ho5 The adjusted mean of the achievement test score on Recitation ability of the students belonging to T, GT, TM, GTM, & GTMR modes will not differ significantly when class achievement test score in English language is considered as covariate.
- Ho6 The adjusted mean of the achievement test score on Language learning of the students belonging to T, GT, TM, GTM, & GTMR modes will not differ significantly when class achievement test score in English language is considered as covariate.

2.3.0 SAMPLE RHYMES

Seven different rhymes were selected for the present study. These seven rhymes were selected purposefully out of the 300 rhymes collected from different sources. The selected rhymes were,

- 1 Twinkle, Twinkle Little Star (Singing Game Rhyme)
- 2 Riddle Me, Riddle Me (Rhyming Riddle)
- 3 Number Rhyme (Counting-out Rhyme)
- 4 Funny, Bunny. (Non-sense Rhyme)
- 5 Johny, Johny. (Non-sense Rhyme)
6. Butterfly, Butterfly. (Singing Rhyme)
- 7 Baa, Baa, Black Sheep. (Singing Game Rhyme)

The above seven rhymes were taken for developing Computer Assisted Learning Material (CALM) on rhymes in different modes by considering the following points;

- Text, Graphics, Music composition

Text, Graphics and Music composition was done considering difficulty level of words meaning of word in the content, length of the rhyme, compatibility of the graphics to theme of the rhyme and corresponding musical notes and their computer programming through BASIC.

- Difficulty level of the content

The difficulty level of the content was taken as per understanding level of second standard pupils based on the criteria of MLL in language learning.

- Interesting presentation in different modes

For relating realising presentation CALM was prepared in different modes, namely, Graphics, Music, Animation and their combination.

- Length of the rhymes

The rhymes selected were such that their length did not exceed eight to ten lines.

- Easy to learn and pleasure to the children

The contents of the rhymes and their modes of presentation were attempted in such a way that they were easy to learn and pleasure to the pupils.

2.4.0 SELECTION OF THE SCHOOL

The Baroda High School Bagikhana, an English medium school was selected purposively for the study by considering following points; (1) school having at least 10 computers, (2) permission for second standard pupils to work on computer during the school hours, and (3) permission to realise experimental conditions.

2.5.0 SAMPLE OF PUPILS

The second standard pupils of Baroda High School (1996-1997) constituted the sample for the study. They were 169 pupils in second standard spread over three sections A, B, and C. There were 57, 54, and 58 pupils in sections A, B, and C, respectively. These pupils were distributed in the three sections according to General Roll (GR) number given at the time of admission. These 169 pupils were divided into groups of pupils considering that each group was comprised of about twenty pupils. Five different groups of pupils (Twenty each) were selected for five different modes of a rhyme, drawn from the sections A, B, and C on the basis of systematic random sampling. The same procedure was followed for other six rhymes in different modes. The rhymes were presented in five different modes namely, T, GT, TM, GTM and, GTMR to five different groups as given in Table 2.1 1.

Table 2.1.1 Distribution of pupils Rhyme-wise and Mode-wise

RHYME	MODE				
	T	GT	TM	GTM	GTMR
Twinkle, Twinkle Little Star	21	20	20	20	20
Riddle Me, Riddle Me	19	19	20	20	19
Number Rhyme	20	19	19	20	20
Funny, Bunny	20	19	20	20	20
Johny, Johny	18	19	19	20	20
Butterfly, Butterfly	18	19	20	20	20
Baa, Baa, Black Sheep	20	20	20	20	17

2.6.0 DESIGN OF THE STUDY

This study is developmental cum experimental in nature. It has been conducted in the following two phases.

2.6.1 PHASE I : TOOL DEVELOPMENT

Two types of tool were developed and used by the researcher to collect data for this study. One is treatment tool and the other one is testing tool.

Treatment tool

The treatment tool was the CALM on rhymes developed by the researcher in different modes, namely, T, TM, GT, and GTM

Development of CALM in different modes

1. Preparation of pen and paper scripts

Prior to the development of computer software on the seven selected rhymes corresponding mode scripts consisting of Text, Music, Graphics and Animation were designed through pen and paper.

2. Computer Software Development

Each mode of presentation, namely, T, GT, TM, GTM, and GTMR were developed using BASIC programming. Graphics were made using LINE, and CIRCLE commands. To develop musical script, first of all musical script was developed by using a musical instrument, namely, synthesiser and harmonium and then rhyme was written in SA, RE, GA, MA, PA, DHA, NI, & SA script including corresponding values of notes and lengths of notes on paper as per BASIC programming language. In the next step, the notes with their values and lengths were transferred to BASIC source code by using PLAY command in BASIC. The syntax of PLAY command is as follows,

```
10 PLAY "MB L5 N30 N32 N34.....N0"
```

where MB is background music, L is length of note and N is value of particular note

The above procedures were followed to develop a rhyme in different modes.

3. Content Validity of the Rhyme and Pedagogic Considerations

The CALM on rhymes in different modes were shown to three experts in the computer field and two experts on English language from the Education Department to evaluate technicality on development and presentation of content, difficulty to understand and comprehend the rhyme through CALM.

4. Modification of CALM

Modification of CALM was done by the researcher incorporating the suggestions from experts, class teachers and pupils before going to experimentation by considering following suggestions,

- More graphical presentations were required regarding the clarity of the content matter of rhyme in GT, and GTM modes,
- Clarity of musical notes in TM and GTM modes

- Pupil controlled presentation of the contents of the rhymes through CALM
- Speed of presentation of the rhyme
- Instructions by computer to the pupils on, what to do, and how to do, while using CALM
- Proper feedback mechanism required during interaction with CALM.
- Presentation of limited contents through CALM.

5. Preparation of Achievement test items

The achievement test items were prepared in order to test achievement of students through different modes of the rhyme. These test items were on different variables, namely, Word Meaning, Analytical Understanding, Comprehensive Understanding, Writing ability, Recitation Ability and Listening, Speaking, Reading, and Writing (LSRW) of the pupils. For testing on Word meaning, some words were selected from the rhyme. For Analytical Understanding, some questions on rhyme were asked to pupils which they were to answer in one sentence according to their level of understanding of the rhyme. For Comprehensive Understanding of the rhyme, pupils were asked to write in three to four sentences on what they comprehended through the rhyme. For testing Writing Ability, pupils were asked to write down the rhyme. For testing Recitation Ability, pupils were asked to recite the rhyme. For knowing Language ability of the pupils, scores on different variables, viz. Word Meaning, Analytical Understanding, Comprehensive Understanding, Writing Ability and Recitation Ability were summed up and considered as a measure of Language ability of the pupils. The items of achievement test followed the pattern of English text book for the second standard.

6. Modification of Achievement test items

The test items constructed were given to two experts of English Language for its content clarity and suitability for second standard pupils. After getting suggestions from the experts, the achievement tests were modified considering the following dimensions

- Structure of the sentence.
- Understanding level of the pupil of second standard.
- Length of pupil response

7. Treatment tool

The treatment tool was CALM on rhymes developed by the investigator in four different modes, namely, T, GT, TM, and GTM. The selected groups of the sample pupils interacted with the CALM in different modes during the process of experimentation. The

experiment on each rhyme took about one week. This way treatment was given with respect to all the seven rhymes.

8. Testing Tool

The testing tool was developed by the investigator. It was an achievement test which was administered to the pupils after they were exposed to CALM on rhymes in different modes. It consisted of items on,

- Word Meaning (Lexicon),
- Analytical Understanding,
- Comprehensive Understanding,
- Writing Ability,
- Recitation Ability, and
- LSRW (Listening, Speaking, Reading, and Writing) Ability.

2.6.2 PHASE II : EXPERIMENTATION

In this phase, the researcher was involved in experimenting with pupils on the prepared CALM on rhymes in different modes in the Baroda High School, Bagikhana.

This was done through the following steps;

- Administration of CALM on Rhymes in different modes;
- Collecting data by administering achievement test.

Administration of CALM:

The administration of CALM on the rhymes was done in Baroda High School Bagikhana, in three different sections A, B and C of the second standard. Each rhyme was presented in five different modes to five different groups of pupils spread over three sections of second standard. The distribution of pupils Rhyme-wise and Mode-wise has been presented in Table 2.1.1.

On the first day, the investigator started experimentation by loading rhyme software in Text mode into eleven different computers in the computer laboratory of the school. Then the specified group was allowed to view it in Text mode through computer. Each computer was usually shared by two pupils. The investigator instructed the pupils regarding what they were to do during experimentation. The investigator helped pupils if they were in some problem during the experimentation. Test was administered on pupils after they viewed the rhyme on computer. They were asked to write down the answers in the test paper itself within space

provided. After, completion of written test, the investigator asked the pupils one after another individually to recite the rhyme rhythmically

The investigator tested the recitation ability by considering articulation, pronunciation, modulation, and gesture etc. and assigned a score immediately after a pupil finished reciting the rhyme. Similar procedure was followed for other four modes of the same rhyme and also for other six different rhymes. Thus the different phases in experimentation were viewing the rhyme in a particular mode, followed by paper-pencil test and then test on recitation, spread over about two hours.

2.7.0 EXPERIMENTAL DESIGN OF THE STUDY

The experimental design of the study was five groups experimental one short study. Five different groups of pupils were presented CALM on a rhyme in different modes. Then the achievement test constructed by researcher on different aspects, namely, word meaning, analytical understanding, comprehensive understanding, writing ability, and recitation ability was administered to measure the effectiveness of different modes as follows:

Group	Experimentation	Post-test
X1	T	O1
X2	GT	O2
X3	TM	O3
X4	GTM	O4
X5	GTMR	O5

In the above table X1, X2, X3, X4 and X5 were five different groups of pupils, T, GT, TM, GTM and GTMR were five different experimental modes and O1, O2, O3, O4, and O5 are mode corresponding post-test scores.

2.8.0 DATA COLLECTION

There were two sets of data in the present study. One was class achievement test scores on English language and the other was post-test scores. Class achievement test scores on English language were collected from the school records of three different sections A, B, and C in second standard. These scores were recorded by the respective

class teachers in the previous class test conducted in English language. In this study class achievement test scores on English language were considered as covariate.

The second set of scores were collected on the post-test. The post-test scores constituted of Word meaning score, Analytical understanding score, Comprehensive understanding score, Writing ability score, Recitation ability score and Language ability score. Summed score on Word meaning, Analytical understanding, Comprehensive understanding, Writing ability, and Recitation ability was considered as Language ability score.

At first selected pupils on Text modes were exposed to CALM on "Twinkle, Twinkle, little star", rhyme for thirty minutes. Before beginning the experiment pupils were given instruction by the investigator. Then they viewed the rhyme through computer after which test papers were distributed to them and they were asked to write down the answer in the test papers itself in the space provided. After completion of written test they were asked to recite the rhyme rhythmically one after another. The rhyme recitation was evaluated keeping in mind, completion of recitation of the rhyme, articulation, pronunciation, modulation and gestures, etc. The written test items were scored by the investigator.

This process of data collection on other four different modes as well as other six different rhymes was done in a similar way in the Baroda High School, Bagikhana.

2.9.0 DATA ANALYSIS

The collected data on different rhymes in different modes were analysed statistically by using Analysis of Covariance (ANCOVA), considering English Language class achievement test scores as covariate.