EXPLORING EFFECTIVENESS OF COMPUTER ASSISTED LEARNING MATERIAL ON RHYMES IN DIFFERENT MODES

An Abstract of the
Thesis Submitted to
The Maharaja Sayajirao University of Baroda
for the Degree of

DOCTOR OF PHILOSOPHY

(Education)

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VADODARA.

AUGUST 1998

INTRODUCTION

To help pupils acquire language competencies, different educationists advocate different approaches. They introduce different methods, media and modes of presentation in order to nurture and develop the elements of language and communication in the pupils To help pupils in primary and pre-primary stages, a number of institutions are using different methods and media. Teachers in some institutions are using picture book, music in audio system and text in hand written form to help pupils learn joyfully They use a combination of different modes to help pupils in the process of learning. A skilled person in graphics, music text and their mix is required to help children in joyful learning.

Any language has a matrix of language elements, viz., phonetics, grammar (syntax) and vocabulary on one side and language skills, listening, speaking, reading, and writing on the other side. There are various objectives of language learning, such as, development of vocabulary, analytical understanding, comprehensive understanding, recitation ability, listening, speaking, reading and writing (LSRW) ability. For achieving the objectives of language learning we are teaching children in the form of rhymes, songs, poems, story, etc. The intuitive stage of cognitive growth (4-7) year is the prime stage for language development. Then the question is which methods, media and modes should be used for language development in this stage. Computer is a powerful medium. It has many attributes required for instruction, viz., storage in the form of text, music, graphics, and animation. Subject matter can be created on computer in various modes, such as, Text, Text Music, Text Graphics, Graphics Text Music etc. and stored and retrieved suitably at the time of need.

There is a need to develop Computer Assisted Learning Material for pupils. It requires the knowledge of contents, pedagogic principles, competencies in programming and using computer as a medium. Computer Assisted Learning Material may help in realisation of the objective of joyful learning of the pupils through text, music, graphics, animation and sound visual effects.

In terms of reading, English Second Language (ESL) readers are less familiar with the semantic and syntactic constrains of the second language. Comprehension suffers because the child can not identify and exploit syntactic relations or use semantic context as a guide to prediction as effectively as natives The second language reader does not posses

significant knowledge of the language on text and therefore has a greater tendency to make graphophonic miscues and substitute words that do not maintain the meaning of the text They have a deficiency in vocabulary of the target language due to the problems in building a body of visual word representations that can only be constructed if the meaning of the word is known. Grabe (1987) proposed that the lack of a large vocabulary that can be read rapidly, accurately and automatically accessed may be the greatest single impediment to fluent reading by ESL reader.

Background knowledge is necessary if full comprehension of a Text is to occur; however, this type of knowledge is culture specific. A child from an ethnic minority will not have the same complex package of beliefs, knowledge, feeling, attitudes, and behaviour as a native child and hence interprets texts significantly and with difficulty. Fluent reading entails both skillful decoding and relating information to reader's prior knowledge of the subject and the world. Reader in ESL must develop a large vocabulary, basic syntactic structures and higher level interpreting strategies (including background knowledge, schematic inference and comprehension strategies) if they are to master the reading process. The language experience approach is consistent with Schema theory. Because it uses child's experiences as the basics for written languages, the child necessarily has schemata to comprehend the material and can thus develop a Schema for reading that includes that idea the written words have meaning (Hacker, 1980).

With the language experiences approach, reading grows out of nature, it is an ongoing activity. Children can see the relationships between reading and their oral language. This approach helps them to visualise readings as" talk written down" and offers good opportunities for developing the concepts of writing, word, and sentence. During the language experience process, children see the transformation from oral language to print take place, including directionality, the spacing between words, and punctuation and capitalisation.

A rhyme is a repetition of identical or closely similar sounds arranged at regular interval. Rhyme words leap easily from the page to the ear to the memory. The mnemonic adhesiveness is such that sometimes it seems impossible to dislodge from mind Rhyme is a rhythmical poem intended to amuse young children. These verses appeal to children because of their pleasing rhymes and sounds and their strong rhythms. Many of the

rhymes are known to some children, but a few or more to others All children delight in rhyming words, rhythm, non-sense sounds, and simple stories. No matter if children do not understand their meaning, they enjoy the singing song rhythm. We think of rhyme as children's literature. Our calling it a rhyme indicates that we think it is suitable for children, and indeed this rhyme appears in countless collections of such rhymes lavishly illustrated and marketed for a child audience. Its brevity, its bounce, and its bumptious fun mark it suitable for children. Further, we do not have a date of composition, something that is usually available when a work of literature comes to us from a named author. The rhyme appears to exist in a timeless zone; it actualizes a freedom that confirms our hope that once upon a time purity and innocence were ours. We want our children to signify the truth of an absolute beginning when nothing needed to be explained, analysed, scrutinised, or interpreted.

We all know that rhymes for children or adults, are not found beneath trees; nor do they emerge fully formed, pristine and transparent, from mysterious vaults presided over by powerful publishers. We know that someone some place and at some time made up this rhyme, just as we know Lewis Carroll made up Alice's Adventures in Wonderland while living in Oxford in the 1860s or William WordsWorth made up The Prelude in stage between 1798 and 1805 and then tinkered with it until he died. Knowing this prompts us to speculate on or investigate the rhyme's origins.

We offer rhyme to children as something valuable when they are very young, and we rightly ask ourselves, why do we do this ? What does this rhyme have to offer children ? What effect will it have on them ? What meaning does it hold ? What meanings will be apparent to children ? What meaning will be accessible, even unconsciously, to them ? Such questions beg others: What is the meaning of meaning ? Is meaning important at all, and if so, then how do we arrive at the meaning of this or any text ? What do we want children to get from this rhyme and why ? (Roderic, Mc.G., 1996)

There are various types of rhymes which are taught to children in schools. These different types of rhymes are Lullabies, Singing game rhyme, Non-sense rhyme, Rhyming riddle, Counting-out rhyme, Tongue twister, Verse stories, Cumulative rhyme, and Jumping rope rhyme. Different rhymes have different purposes. Some are sung to help

children fall asleep, some are just for fun, and some are to identify a certain object from clues in the verse etc. Sometimes it is difficult to pronounce, remember, write, recite and understand the rhyme on the part of the elementary children.

SYNTHETIC VIEW OF THE RELATED LITERATURE

The literature reviewed by the researcher has been presented in two sections. The first section is related to studies on computer and children learning process through computer, especially, in elementary schools and; section two deals with the studies related to pupil learning process involving rhyme, rhythms, songs, music and different learning processes in general, in elementary schools.

SECTION ONE:

This section deals in studies on (1) different modes, (2) interactions with computer with reference to understanding, (3) spelling, vocabulary, composition (4) reactions, attitude and motivation of the students towards computer, (5) comparative studies on achievement, and (6) related miscellaneous studies.

Studies on different modes

The researcher identified 13 studies on different modes of presentation through computer between 1991 and 1995. These studies focus on reading comprehension, listening comprehension, compositional concept, reading skills, satisfaction, memory recall, attitude towards instruction, language acquisition, sight reading, word recognition, vocabulary, learning on instruction, learning effect with different modes of computer i.e., picture, picture with word, text, text with sound, text with moving picture plus sound, tactile with rhythm, animation, graphics map, colour and black and white graphics. The samples of all the above studies were within 100 elementary pupils selected randomly or purposively within the age range 6-12 years. In most of the cases, CAI materials developed for different purposes were analysed by ANOVA, t-test, randomised block design etc.

These studies reveal that there is a difference between two groups of pupils in pre-test and post-test, and, mix of graphics, animation, colour is better than single mode. But it is not clear from the above studies as to which mode is better than which mode and in which situation.

Studies on interaction with computer with reference to understanding

The researcher identified four studies among this category conducted between 1991 and 1993. In these studies, the variables were interaction, learning understanding, language acquisition, instructional preparedness. The sample of these studies were kindergarten, second grade pupils and pupils of 3 to 5 years old.

The studies revealed that traditional method was found more preferred to interacting with computer. Higher grade pupils performance was found better than that of kindergartners. The increased computer use by pupils in urban environment promoted meaningful social interactions, and effective use of computer instruction enhancing, computer awareness.

Studies on spelling, writing, composition and vocabulary

The researcher identified 12 studies related to spelling, vocabulary, writing, and composition conducted between 1991 and 1994. These studies were on spelling acquisition, writing beats on computer, visual composition, linguistic composition, instructional time, student-teacher satisfaction, length of vocabulary, computer used writing, problem solving, literacy development, comprehensive writing, computer based reading, writing conversation, length of writing product, and attitude towards writing. The sample of the above studies were drawn randomly from first grade to sixth grade pupils. In most of the studies, tools were computer packages, interviews and observation schedules. The analysis of the data were carried out quantitatively as well as qualitatively. The quantitative data were analysed through ANOVA and ANCOVA.

It is evident through the studies that computer as a tool helps the pupils in language development in writing, reading, spelling and, composition but not all the elements of a language; which needs to be further explored. Pupils are interested in computer aided instruction than traditional method, and they respond differently to computer, based on their experience and abilities.

Studies on reaction, attitude, and motivation of the pupils toward computers

The researcher identified four studies conducted between 1991 and 1994, dealing in writing attitude, motivation, attendance, and attitude towards computer packages The sample for these studies were drawn from first through six grade pupils in control and experimental

groups. CAI, observation schedule and questionnaire were used. The studies reveal that there is no difference between attitude as well as motivation on control and experimental situation. A positive correlation was found between improving writing using computer and thinking. Pupils benefited from CAI to develop computational concept and problem solving.

Studies on comparative achievement on computers

The researcher identified 13 studies conducted during 1991 and 1994. These studies were conducted on problem solving, syntactic, orthographic, graphophonic, written language , language achievement, reading comprehension, traditional instruction, language art, self efficiency, attitude towards low SES, on screen and hand-on-manipulation. The sample for these studies varies from kindergarten through six grade pupils. Most of the studies used quantitative approach and a few are on qualitative approach. These studies were done in experimental situation mostly and used t-test, and ANOVA .

It is understood that pupils are benefited from computer software for developing certain abilities i.e., problem solving, mathematics, language, geometry, and logic etc. But the above studies do not give a clear idea on which elements of language are developed and which are not developed through computer, and which need to be explored. Also it is not clear from the above studies as to which level pupils gain mastery on particular concepts or skills through computer. So there is a need to find-out a solution to the above stated problem by extensively using computer in this age group pupils.

Studies on computers and their effects on language and social interaction on pupils

The researcher identified three studies conducted on these variable between 1991-1994. These studies were conducted on language, social interaction, task difficulties, academic performance, discretionary activities and recreational behaviour with sample of kindergarten, third and fourth grade pupils. For data collection CAI packages and interview were used. Pupils using computer instruction were found social in nature, co-operative, helping behaviour on tasks, regardless of varying computing abilities. Computer software was found to have an effect on language behaviour.

Miscellaneous studies on computer

The researcher identified seven studies conducted on different areas on computer between 1991 and 1995. The studies were conducted on discourse skill, methods, achievement, mode of presentation, counting skills, perception of teachers, pupils, parents and administrators, syntax, semantics and symbols. The sample of these studies were drawn from kindergarten, elementary aged pupils, teachers, and experts. They used computer software and interview as tools for data collection and analysed the data through ANCOVA.

It has been found that, achievement of pupils is not affected by method of presentation of CAL . It was found difficult to introduce computer in schools due to time schedule and less equipment available and despite real age difference between teacher and students , school students are performing to the same standard as their teacher.

SECTION TWO:

This second section presents six sub-themes according to different variables involved. These are (1) studies developing language through musical program and its effects on the reading achievement of the children, (2) studies on writing ability, (3) studies conducted on listening, reading, comprehension in phonological process, (4) studies conducted on rhyme, rhythm and song, (5) studies conducted on picture vocabulary acquisition and informational picture books, and (6) miscellaneous studies.

The researcher identified 21 studies in this section. These studies were conducted between the year 1989 and 1997. Most of the studies were conducted at elementary school level with objectives, viz. language development, comprehension in phonological process, reading ability, word meaning, vocabulary through music, rhyme, rhythm, picture book, and different modes of presentation and their effects.

It is evident that through the above presentation that

(1) The presence of music has no effect on learning of pupils and also pupils did not suffer academically by this program.

(2) Writing ability depends on the interest of the pupils and their preferences. It starts from standard one and understanding their writing development depends on their attitudes.

(3) First grade pupils with visual and factual perceptual help have been found doing well on reading recall. Reading accuracy has been found to be developed through auditory perceptual help

4) The pupils with large vocabulary produce novel words and who answer question during the book reading have been found to comprehend better.

(5) Alphabet knowledge, orthographic knowledge and cognitive development contributed in both initial consonant development and concept of word development.

(6) The new rhymes were found more effective than old rhymes.

(7) Understanding of culturally based picture conventions influenced meaning making, and

(8) Question recall has been found to produce higher achievement in rhythm lessons.

The review presented above has given substantive and methodological insight to conduct the present study.

RATIONALE OF THE STUDY

We think of rhyme as a literature for the young children. We introduce rhyme to very small children unexplained, unanalysed, un-scrutinised and un-interpreted. We offer rhyme to child as something valuable when they are very young, and we rightly ask ourselves, why do we do this? What effect will it have on them? What meaning does it hold? What meanings will be accessible even unconsciously to them ? Such questions beg others: what is the meaning of meaning? is meaning important at all, and if so, then how do we arrive at the meaning of rhyme and why ?

We know that a rhyme is easily memorised because of repetition of identical or closely similar sounds arranged at regular intervals. There are different types of rhymes, such as, "Tongue Twister" which is very difficult to pronounce, "Rhyming Riddle", where it is very difficult to identify what is given in the rhyme for young children and "Verse Stories" which are difficult to remember for elementary stage pupils.

Rhyming is an integral component of elementary education. A child starts to learn rhyme through different means. Sometimes rhymes are introduced to them before coming to school by their parents. Parents recite the rhymes, poems, or songs in front of their children with emotion and expectation that the children will be able to recite the rhyme. They never consider any learning element when children are singing. They consider only whether their children can recite the rhyme. In the formal setting like in nursery schools and primary schools, teachers are using the rhymes with different forms. Sometimes they are reciting with students, may be, matching their movements with pupils in form of a music system, sometimes they are watching video along with their students and acting accordingly,

sometimes they are playing games with counting numbers with their pupils on the ground Here the question is that, is there any skill developed by doing these activities? Are there some skills involved in the process of rhyming? Which level of skills of Listening, Speaking, Reading, Writing they pick up with respect to lexicon, grammar (syntax), phonetics? The related literature shows that Computer Assisted Learning Material (CALM) can foster language skills among very young children in elementary level.

In the process of finding solutions to the above mentioned questions, the researcher came across a medium, namely, computer which can be used by very young children in classroom, interactively. They are generally playing games on computer. Are skills, such as, search, motor-muscle operation, eye hand co-ordination, concentration on particular task, etc. developed ? What are the relative effects of graphics, animation, and music on children while they are playing games through computers? Can computer be used as medium for developing educational skills needed for the children at the primary level ?. So, the researcher thought of developing CALM for young children in one of the school subjects in primary class. The related studies reveal that the use of computer improves intellectual activities among first and second grade students, such as, creativity and desire to study (Keiko, 1991).

Some studies have been conducted on CALM in elementary class in different modes. These mode are text, picture with words, text with sound, animation, pictorial and non-pictorial presentations. No studies have been conducted to find out the effectiveness of computer as an instructional medium in different modes in terms of language ability, word meaning, analytical understanding, writing ability, comprehensive understating, and recitation ability of the children. There are very limited computer curricula at the elementary school level, and also CALM is scarcely available for those institutions who attempt to include Computer Based Curricula for their elementary school children. An attempt has been made to answer certain question relating to implementing the computer based curricula ?. What can be incorporated in the curriculum either for teaching about computer or teaching by using the computer ?, what are the contents that can be taught through computer?, what should be the contents that can be practiced through computer while teaching to the pupils?, what are the limitations of the use of computer?. How can computer be used to make a significant deference in the educational programmer to improve or enhance learning, and to

provide needed skills ?. It is a step to answer some of the questions which are in the mind of the researcher and to provide a substance for computer curricula and tiny package for tiny learners. The present study attempts to **explore effectiveness of computer assisted learning material on rhyme in different modes.**

THE PRESENT STUDY

The title of the present study is **"Exploring Effectiveness of Computer Assisted Learning Material on Rhymes in Different Modes".**

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.

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.

OPERATIONAL DEFINITION OF THE TERMS

Lexicon: By lexicon the investigator means the vocabulary of a particular language i,e., the complete set of meaningful unit in a language; the words.

Analytical understanding: Analytical understanding is understanding of the word order to express syntactic relationship. In the present study the analytical understanding means the understanding of the different segments of a rhyme and their relationship.

Comprehensive understanding: By Comprehensive understanding with respect to the present study the investigator means the understanding of the theme of the rhyme.

Writing ability: By writing ability the investigator means the ability to write rhyme in English language using grammar rules.

Recitation ability: It is an elocutionary delivery of a rhyme without the text i e , the repetition something got by heart

Language Learning ability: In the present study the pooled score on lexicon, analytical understanding, comprehensive understanding, writing ability and recitation abilities represents the language learning ability.

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, 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 realising interesting 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

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.

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 devided 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.

Table 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

DESIGN OF THE STUDY

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

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 the 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. 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.

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.

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. Investigator started experimentation and 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 writedown 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.

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:

Pre-test	Experiment	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 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 respectively.

DATA COLLECTION

There were two sets of data in the present study. One was class achievement test scores on English language and other one was post-test scores. Class achievement test on English language scores 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 teacher in the previous class test conducted in English language. In this study class achievement test on English language scores were considered as covariate.

The second set of scores were collected on the post-test. 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 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 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.

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.

FINDINGS OF THE STUDY

1. In four rhymes out of the seven, different modes, namely, Text, Graphics Text, Text Music, Graphics Text Music and Graphics Text Music Recitation have been found to differ significantly in terms of adjusted mean achievement on the dependent variable Word meaning, Analytical understanding, Comprehensive understanding, Writing ability, Recitation ability, and Language ability when class achievement test scores on English language was considered as covariate.

2. Graphics Text mode has been found comparatively weaker than the other modes in learning Word meaning (Lexicon) on rhymes in different modes.

3. In two rhymes Text mode largely has been found comparatively weaker than the other modes for developing Analytical understanding, whereas, in one rhyme Text mode has been found most effective for developing Analytical understanding with respect to other modes.

4. In three out of the seven rhymes Text mode largely has been found comparatively weaker than other modes for Comprehensive understanding, whereas, in one rhyme Text mode has been found most effective for Comprehensive understanding
5. In two rhymes Graphics Text Music Recitation and Graphics Text Music have been found comparatively more effective than the other modes in developing Writing abilities. However, in one rhyme Text mode have been found more effective than Graphics Text and Text Music modes in developing Writing ability.
6. Text and Graphics Text mode have been found comparatively weaker modes in developing recitation ability of the pupils.
7. In one rhyme Text Music, Graphics Text Music, and Graphics Text Music Recitation modes have been found more effectively than Text mode for developing Language abilities of the pupils on rhymes.
8. In one of the seven rhymes Text mode has been found most effective in developing Language ability. In the same rhyme Graphics Text Music and Graphics Text Music Recitation mode have been found more effective than Graphics Text mode in developing Language abilities of the pupils.
9. In five out of the seven rhymes no significant difference has been found in different modes for developing Language ability of the pupils.

CONCLUSION

Joyful learning has to be the Intent of instruction particularly at primary school level. Computer as a potent medium can significantly contribute to the relisation of this intention. The Computer Assisted Learning Material developed by the researcher and its administration in different modes is an evidence to it. An attempt has been made to study the relative effectiveness of Computer Assisted learning Material through different modes for learning English. It seems the development of language abilities is a function of interaction among the message, medium and mode. Mode cannot be isolated from message and medium. More composite modes may not always ensure higher learning in all areas of Language development.