ADULT EDUCATION SYSTEM USING COMPUTER AIDED INSTRUCTIONS

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CERTIFICATE

I hereby certify that the work which is being presented in the project entitled "Adult Education Package Using Computer Aided Instructions" by "Dakshdeep Singh, Gaurav Gupta, Ankit Singh, Aman Singh" in partial fulfillment of requirements for the award of degree of B.Tech. (C.S.E.) submitted in the Department of (Computer Science Engineering) at JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY is an authentic record of our own work under the supervision of Ms. Chetna Gupta. The matter presented in this project has not been submitted by us in any other University / Institute for the award of B.Tech. Degree.

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This is to certify that the above statement made by the candidate is correct to the best of my knowledge

24th May 2007

Ms. Chetna Gupta

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LIST OF ABBREVIATIONS

1. Computer Aided Instruction: CAI
2. International Business Machine Corporation: IBM
3. Programmed Logic for Automatic Teaching Operations: PLATO
4. Time-shared Interactive Computer-Controlled Information Television: TICCIT
5. Computer-based Educational Research Laboratory: CERL
6. Control Data Corporation: CDC
7. Educational Testing Service: ETS
8. Central Processing Unit: CPU
9. Shockwave File: SWF
10. American Standard Code of Information Interchange: ASCII

ABSTRACT

The project will allow an illiterate to learn with the help of Computer Aided Instructions, the basics of education necessary in today's world. It will consist of a user friendly interface that will include photographs, videos, animation, speech and music providing educational material in a navigable form. It will provide repetitive guided drills and game based skills to increase the command of knowledge. This package would be recording student scores and progress for immediate inspection by the computer.

The events in the project are:

1. Stimulation to gain attention- to ensure the reception of stimuli.
2. Informing the learner of the learning objective- to establish appropriate expectancies.
3. Reminding learners of previously learned content -for retrieval from long term memory.
4. Clear and distinctive presentation of material- to ensure selective perception.
5. Guidance of learning- by suitable semantic encoding.
6. Eliciting performance- involving response generation.
7. Providing feedback- about performance.
8. Assessing the performance- involving additional response feedback occasions.

CHAPTER I

COMPUTER AIDED INSTRUCTION

1.1 Introduction

Computer Aided Instruction (often abbreviated **CAI**) refers to a system of educational instruction performed almost entirely by computer. Such systems typically incorporate functions such as:

- Assessing student capabilities with a pre-test
- Presenting educational materials in a navigable form
- Providing repetitive drills to improve the student's command of knowledge
- Providing game-based drills to increase learning enjoyment
- Assessing student progress with a post-test
- Routing students through a series of courseware instructional programs.
- Recording student scores and progress for later inspection by a courseware instructor.

1.2 History of Computer Aided Instruction

In the mid-1950s and early 1960s a collaboration between educators at Stanford University in California and International Business Machines Corporation (IBM) introduced CAI into select elementary schools. Initially, CAI programs were a linear presentation of information with drill and practice sessions. These early CAI systems were limited by the expense and the difficulty of obtaining, maintaining, and using the computers that were available at that time.

Programmed Logic for Automatic Teaching Operations (PLATO) system, another early CAI system initiated at the University of Illinois in the early 1960s and developed by Control Data Corporation, was used for higher learning. It consisted of a mainframe computer that supported up to 1000 terminals for use by individual students. By 1985 over 100 PLATO systems were operating in the United States. From 1978 to 1985 users logged 40 million hours on PLATO systems. PLATO also introduced a communication system between students that was a forerunner of modern electronic mail (messages electronically passed from computer to

computer). The Time-shared Interactive Computer-Controlled Information Television (TICCIT) system was a CAI project developed by Mitre Corporation and Brigham Young University in Utah. Based on personal computer and television technology, TICCIT was used in the early 1970s to teach freshman-level mathematics and English courses.

With the advent of cheaper and more powerful personal computers in the 1980s, use of CAI increased dramatically. In 1980 only 5 percent of elementary schools and 20 percent of secondary schools in the United States had computers for assisting instruction. Three years later, both numbers had roughly quadrupled, and by the end of the decade nearly all schools in the United States, and in most industrialized countries, were equipped with teaching computers.

A recent development with far ranging implications for CAI is the vast expansion of the Internet, a consortium of interlinked computers. By connecting millions of computers worldwide, these networks enable students to access huge stores of information, which greatly enhances their research capabilities.

1.2.1 Programmed Logic for Automatic Teaching Operations (PLATO)

The PLATO instructional computing system provided many children in the 1970s with their first experiences with computer systems. PLATO, developed at the University of Illinois, was a computer learning system designed to give students an opportunity to learn at a self-directed pace. Although PLATO is short for Programmed Logic for Automatic Teaching Operations, it is almost always abbreviated.

PLATO consisted of a network of terminals and a mainframe computer. Students could log in to any of the terminals and complete any of the thousands of lessons available on the system. PLATO tracked the students' progress and provided guidance to the appropriate skill levels. Instructors could program PLATO to give advanced students the ability to branch away from the main subject area for additional learning, while keeping students who were struggling on the main path of lessons. Programmers could write lessons for PLATO using a language called

TUTOR.

PLATO eventually spawned a "virtual community" of instructors and individuals involved in developing the system. The people who were involved with PLATO could converse with each other using a rudimentary email system and a group notes system in the mid-1970s. Many experts consider PLATO one of the first virtual communities..

Most people credit Donald Bitzer, then a professor at Illinois, with inventing PLATO in 1961. Bitzer also holds a patent for inventing plasma-display panels, which came about as a result of his work on PLATO. Bitzer and H. Gene Slottow were looking for a touch screen to use with PLATO when they came up with the idea of plasma-display panels.

"We actually figured out how to make these screens in about 15 minutes while waiting for our wives to come pick us up," Bitzer said in a 1999 interview.

Several other people in Illinois' CERL (Computer-based Educational Research Laboratory) had a hand in developing the system over the next couple of decades. During its development in the 1960s, PLATO was a small system, supporting only one room of terminals. However, by 1972, newer mainframes allowed support for as many as 1,000 terminals simultaneously. Students could also use modems to dial into the mainframe and access PLATO by the mid-1970s. Students in many countries, including South Africa, Australia, and Israel, used PLATO.

Experts often say PLATO was several years ahead of its time. It offered high-resolution graphical interfaces and touch screens, which made using the system easy and enjoyable for children. In fact, many experts favorably compare PLATO's look and feel to today's World Wide Web.

Today, the PLATO brand name has evolved into a software company with a focus on educational tools. After obtaining the rights to the PLATO name and product in 1976 from

Illinois, CDC (Control Data Corp.) began marketing PLATO. In the late 1980s, TRO (The Roach Organization) obtained PLATO, and the company changed its name in 2000 to PLATO Learning, which is based in Bloomington, Minn.

1.2.2 TICCIT
(Time-Shared Interactive Computer Controlled Information Television)

TICCIT (Time-Shared Interactive Computer Controlled Information Television) is another major CAI system developed at the University of Texas and Brigham Young University and funded by a grant from the National Science Foundation in 1977 (Kinzer, Sherwood, and Bransford, 1986). This system was designed to teach higher-order concepts using an instructional design system called RULEG. RULEG provides a general statement, or rule, and examples of how the rule is applied. Niemiec and Walberg (1989) stated that this system was innovative because the "instructional tactics were unique to the system and not particular to the authors of programs" (p. 272-273). The audience using the TICCIT system was intended to be adult learners, but another version was later released for elementary schools.

TICCIT or Time-Shared Interactive Computer Controlled Information Television System attempted to test the effectiveness of computer-aided instruction (CAI) against the traditional classroom format. (Saettler, 1990). TICCIT, together with PLATO (Programmed Logic for Automatic Teaching Operation) received $60 million in funding from the National Science Foundation, and both were formally evaluated by the Educational Testing Service (ETS) (Chambers, 1983).

TICCIT was designed to be the primary, rather than supplemental medium of instruction for 5,000 college students "using minicomputers, color TV, graphics, and the expertise of content specialists and psychologists well-versed in instructional design (Chambers, 1983, p. 11)." According to Saettler (1990), the MITRE Corporation and the University of Texas (now Brigham Young University) initially intended to implement TICCIT into elementary schools in 1969. Other authors state that TICCIT mathematics and English freshman-level courses were eventually launched at two community colleges, Phoenix College in Arizona and Northern Virginia in Alexandria in 1971-72 (Chambers, 1983; Alessi & Trollip, 1991). ETS's evaluation

was mixed: Both the TICCIT mathematics and English course students reported "significant achievement" over the traditional classroom formats; however, more students favored lecture classes over TICCIT math courses, and fewer students completed the TICCIT math courses as compared to the standard (Chambers, 1983).

Both the design and the implementation of the TICCIT project had influences upon Instructional Technology. "For the first time, a large scale project emphasized innovative approaches to hardware as well as in-depth consideration of learning theory and instructional strategies in the design of the course materials (Chambers, 11). " The CAI research highlighted factors beyond the instruction materials which influence effectiveness. For example, Chambers concluded that many "students simply did not complete the mathematics CAI course, apparently because the faculty paid little or no attention to their needs." The faculty's minimal interaction may be attributed to fear of technology or inadequate training. Most instructional development plans today analyze the needs of all users, both students and instructors, and try to build in adequate support. Also, TICCIT strongly emphasized the concept of learner control as well as component design theory (Allessi &Trollip, 1991). However, the TICCIT math students did not receive sufficient feedback about their progress, and consequently made poor control decisions about what and when to study, practice, and test. Instructional developers who design a tutorial program such as this must embed some feedback mechanism either into the program itself or through instructor training, and they must also evaluate how much learner control is appropriate given the skill base of the targeted learners.

1.3 Types of Computer Aided Instruction

Information that helps teach or encourages interaction can be presented on computers in the form of text or in multimedia formats, which include photographs, videos, animation, speech, and music. The guided drill is a computer program that poses questions to students, returns feedback, and selects additional questions based on the students' responses. Recent guided drill systems incorporate the principles of education in addition to subject matter knowledge into the computer program.

Computers also can help students visualize objects that are difficult or impossible to view. For example, computers can be used to display human anatomy, molecular structures, or complex geometrical objects. Exploration and manipulation of simulated environments can be accomplished with CAI ranging from virtual laboratory experiments that may be too difficult, expensive, or dangerous to perform in a school environment to complex virtual worlds like those used in airplane flight simulators.

CAI tools, such as word processors, spreadsheets, and databases, collect, organize, analyze, and transmit information. They also facilitate communication among students, between students and instructors, and beyond the classroom to distant students, instructors, and experts.

CAI systems can be categorized based on who controls the progression of the lesson. Early systems were linear presentations of information and guided drill, and control was directed by the author of the software. In modern systems, and especially with visualization systems and simulated environments, control often rests with the student or with the instructor. This permits information to be reviewed or examined out of sequence. Related material also may be explored. In some group instructional activities, the lesson can progress according to the dynamics of the group.

1.4 Advantages and Disadvantages of Computer Aided Instruction

CAI can dramatically increase a student's access to information. The program can adapt to the abilities and preferences of the individual student and increase the amount of personalized instruction a student receives. Many students benefit from the immediate responsiveness of computer interactions and appreciate the self-paced and private learning environment. Moreover, computer-learning experiences often engage the interest of students, motivating them to learn and increasing independence and personal responsibility for education.

Although it is difficult to assess the effectiveness of any educational system, numerous studies have reported that CAI is successful in raising examination scores, improving student attitudes,

and lowering the amount of time required to master certain material. While study results vary greatly, there is substantial evidence that CAI can enhance learning at all educational levels.

In some applications, especially those involving abstract reasoning and problem-solving processes, CAI has not been very effective. Critics claim that poorly designed CAI systems can dehumanize or regiment the educational experience and thereby diminish student interest and motivation. Other disadvantages of CAI stem from the difficulty and expense of implementing and maintaining the necessary computer systems. Some student failures can be traced to inadequate teacher training in CAI systems. Student training in the computer technology may be required as well, and this process can distract from the core educational process. Although much effort has been directed at developing CAI systems that are easy to use and incorporate expert knowledge of teaching and learning, such systems are still far from achieving their full potential.

1.5 Role of Computer Aided Instruction in Science

Science computer programs demonstrate concepts, instruct, and remediate student errors and misunderstandings from preschool through college levels. Some programs help students learn key vocabulary words; others demonstrate concepts such as how machines work, the life cycle of a butterfly, and the positions of the stars and planets. Students can use Web sites to research information, find resources, or locate topics for science fair projects. Many science textbooks come with interactive CD-ROMs that can be used to reinforce ideas. Computer-created graphic organizers and concept maps can be used by students to organize ideas in science or as a guide for interpreting information found in a science textbook. Students can spend time in a virtual laboratory studying chemical reactions or observing a microscopic cell. They can answer questions about animals, see how clouds and mountains are formed, or watch the movement of the plates of our planet. There are games, quizzes, and information to support and enhance instruction. Problem-solving activities help students improve their higher order thinking skills and challenge all students.

1.6 Problem statement and approaches.

To create an adult education package using rules of computer aided instructions in flash. There can be four approaches to reach our problem. They are described as under with their respective advantages and disadvantages.

1. By having an instructor appointed for giving the presentation.
2. Just by using visual text and images.
3. By having a recorded sound to teach the illiterate.
4. By creating a user friendly interface that includes text, sound, animation, videos, etc.

1.6.1 By having an instructor appointed for giving the presentation.

Advantages:

a) User to user interface is the best way to help a illiterate learn fast as well as easily.

Disadvantages:

a) Presence of instructor is always necessary which is quiet difficult.
b) Every illiterate will not get a proper chance to interact with the instructor.
c) Instructor should be well equipped with teaching methodology.

1.6.2 Just by using visual text and images.

Disadvantages:

a) There is no one present to tell the illiterate what's there in the text as the illiterate might not know how to read.

b) By having a recorded sound to teach the illiterate.

Disadvantages:

a) There is no visualization and the user my find difficulty in understanding things.

1.6.3 By creating a user friendly interface that includes both text as well as sound.

Advantages:

a) No need of an instructor.

b) Every illiterate can interact with the system independently.

c) Easy to use and learn.

After analyzing the above approaches we came to a consensus that the approach "creating a user friendly interface that includes both text as well as sound" is best suited for teaching an illiterate.

CHAPTER II

MODEL DESIGN AND ANALYSIS

2.1 Introduction

The model design controls the relationship among the modules and provides the interface and data structure of the module. It tells the user how data items are exchanged among different modules.

2.2 Control Flow Diagram

2.2.1 0 Level

The adult education system deals with teaching an illiterate adult to the basic education required in today's life. The system interacts with user through voice, text and multimedia services. The system evaluates the test and according to the result of the conducted test it teaches the adult.

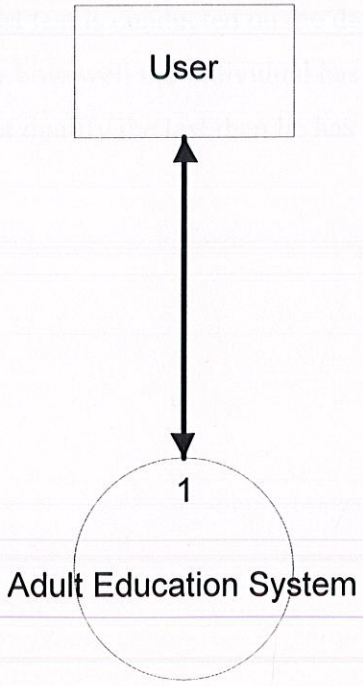

Fig.2-1 Control flow diagram 0-level

2.2.2 *1 Level*

Adult education system can be divided into the following..

i. Computer related education: the user is taught about the basics of a computer, irrespective of his previous knowledge of computers.

ii. Pre-Test: The test tells us the capability of the student that will be taught with the help of the system. The test allows us to know the level at which the student is and from what level is the student required to be taught.

iii. Learning Procedure: This uses the basic education materials in the text, voice and multimedia formats to teach the user. The procedure lays down a great platform for higher levels of education.

iv. Post-Test: The post test is conducted on the data that is taught to the individual. This allows us to know how well the individual has grasped the material that is taught to him, if he does not qualify the test then he has to repeat the same level again.

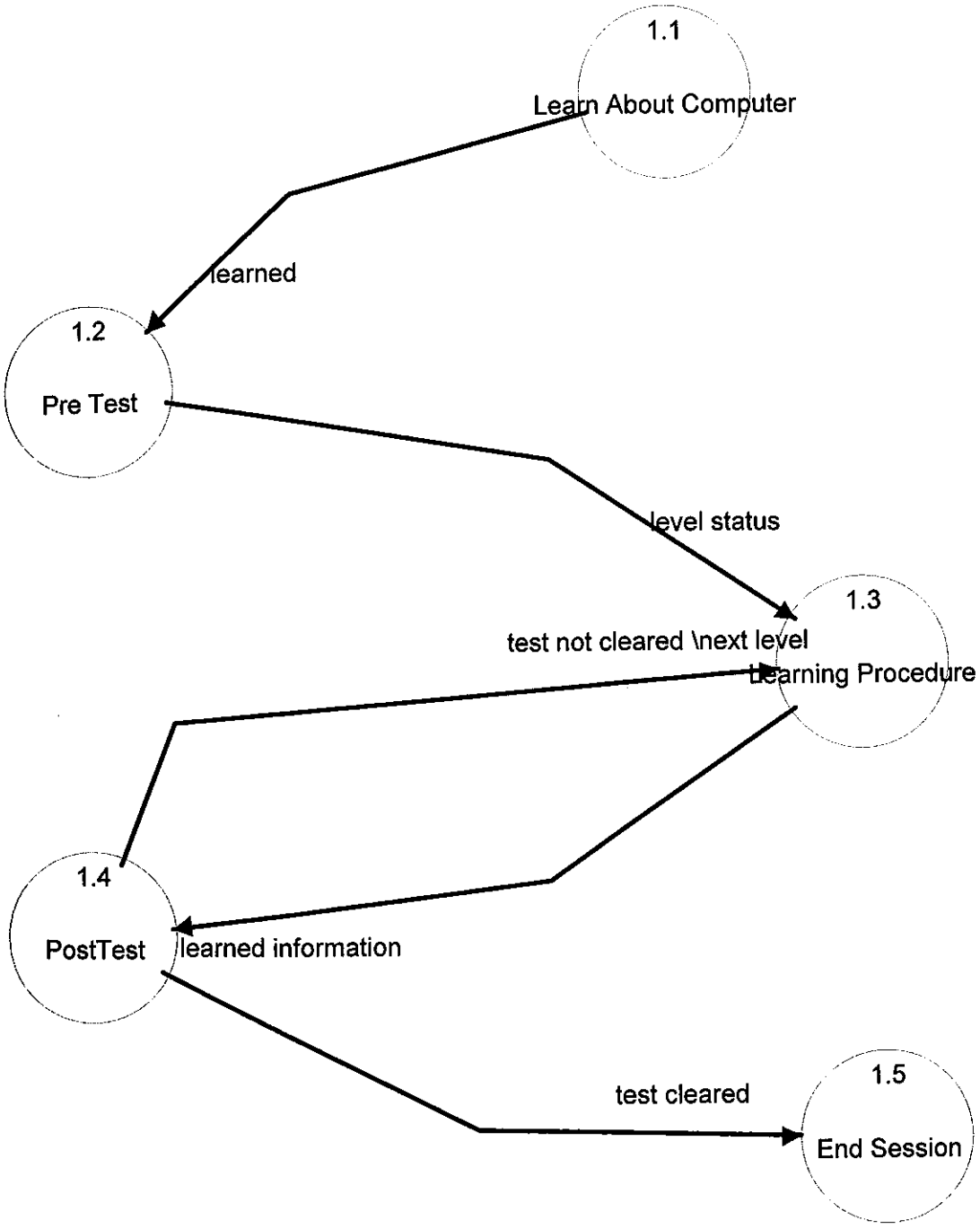

Fig.2-2 Control flow diagram 1st –level

2.2.3 2 Level

i. *Learn About computer*

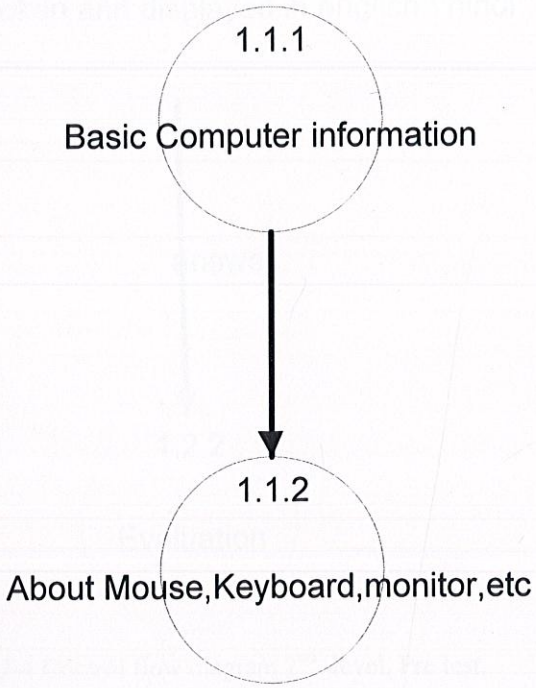

Fig.2-3 Control flow diagram 2nd -level, Learn about computer.

- The person is first told about what a computer is. Then introduction to the computer is given.
- The person is taught about the basic devices that comprise of the computer such as mouse, keyboard, monitor etc. in hindi language.

ii. *Pre test*

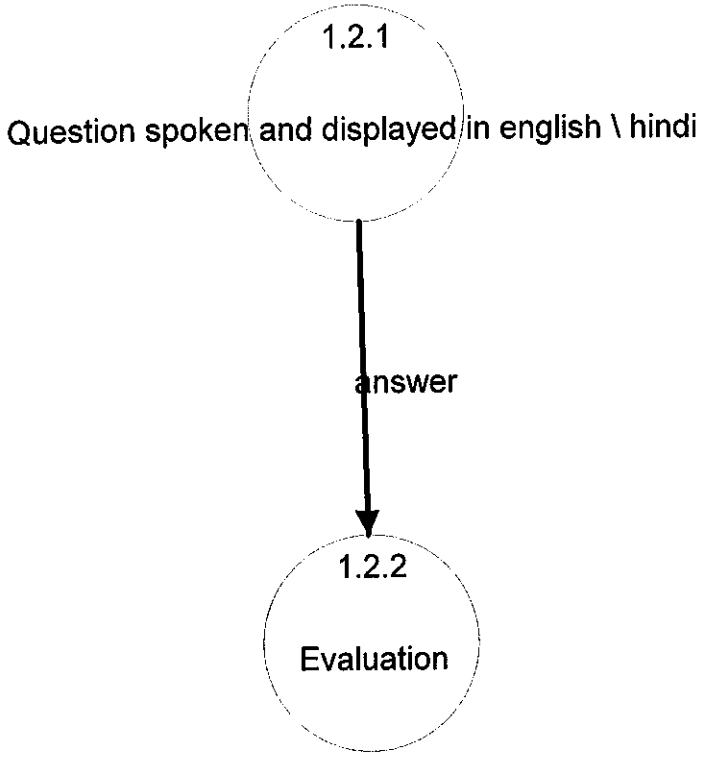

Fig.2-4 Control flow diagram 2nd -level, Pre test.

- Questions are displayed in front of the person in english/hindi, the individual also with the display in text can hear the questions through the sound.(the student answers the questions)

- The student after the test is conducted his paper goes through the evaluation procedure and student is allotted to a level at which he is taught.

iii. *Learning Procedure*

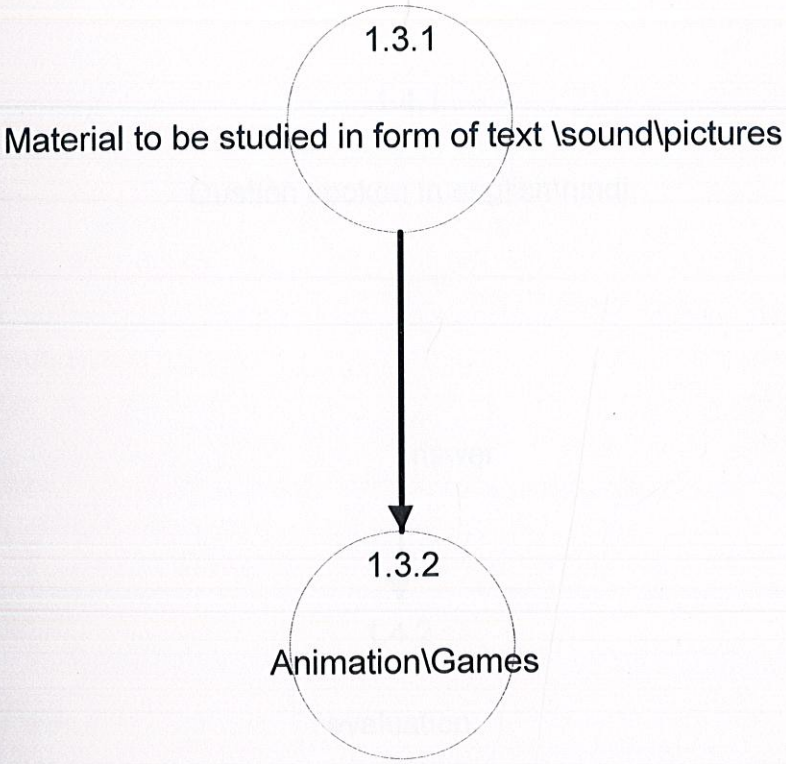

Fig.2-5 Control flow diagram 2nd -level, Learning Procedure

- According to the level allotted the student is then taught using the text/sound/pictures the material to be studied by him at that particular level.

- After the teaching procedure through text/sound/pictures the student goes through repetitive drills through animations and games at different levels.(learning is completed)

iv. *Post test*

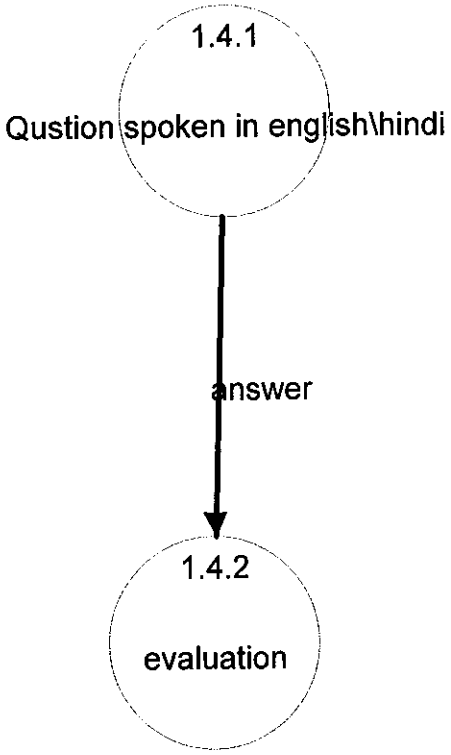

Fig.2-6 Control flow diagram 2nd -level,Post-test.

- Questions are displayed in front of the person in English Hindi, the individual also with the display in text can hear the questions through the sound.(the student answers the questions)

- The student after the test is conducted his paper goes through the evaluation procedure and student is allotted to new level/ same level, if the last level then the course ends.

2.3 Input Output

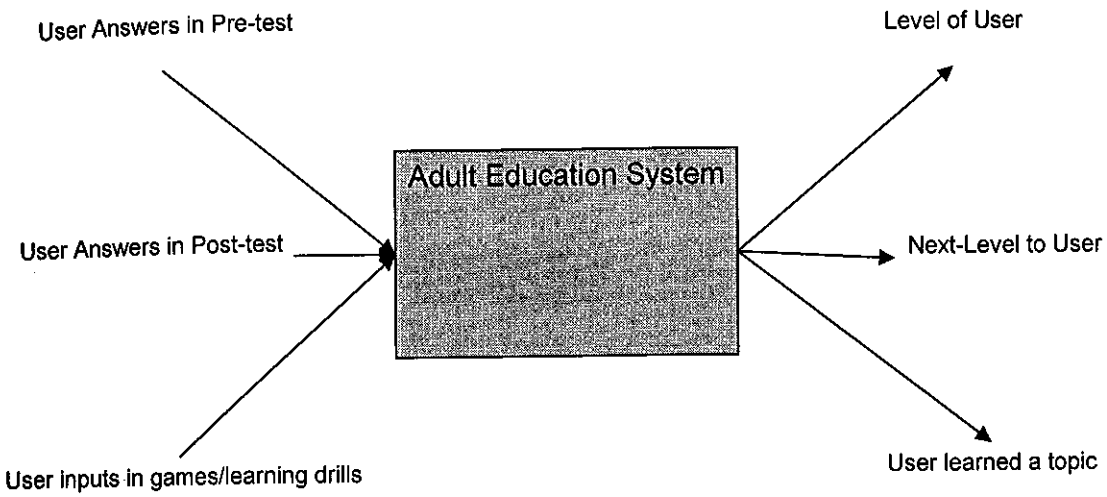

Fig.2-7 Input output

- The inputs are in form of answers to the various questions in the pre-test and the post-test system.
- The inputs also come in the form of game playing and learning procedure during the repetitive drills of the classroom.
- The output is the evaluations of the level from the answers to the various questions in the pre-test or the promotion to the next level from post-test in the system.
- The output is the knowledge gain by the user through the repetitive drills used to teach him the education material in the classroom.

2.4 Flowchart

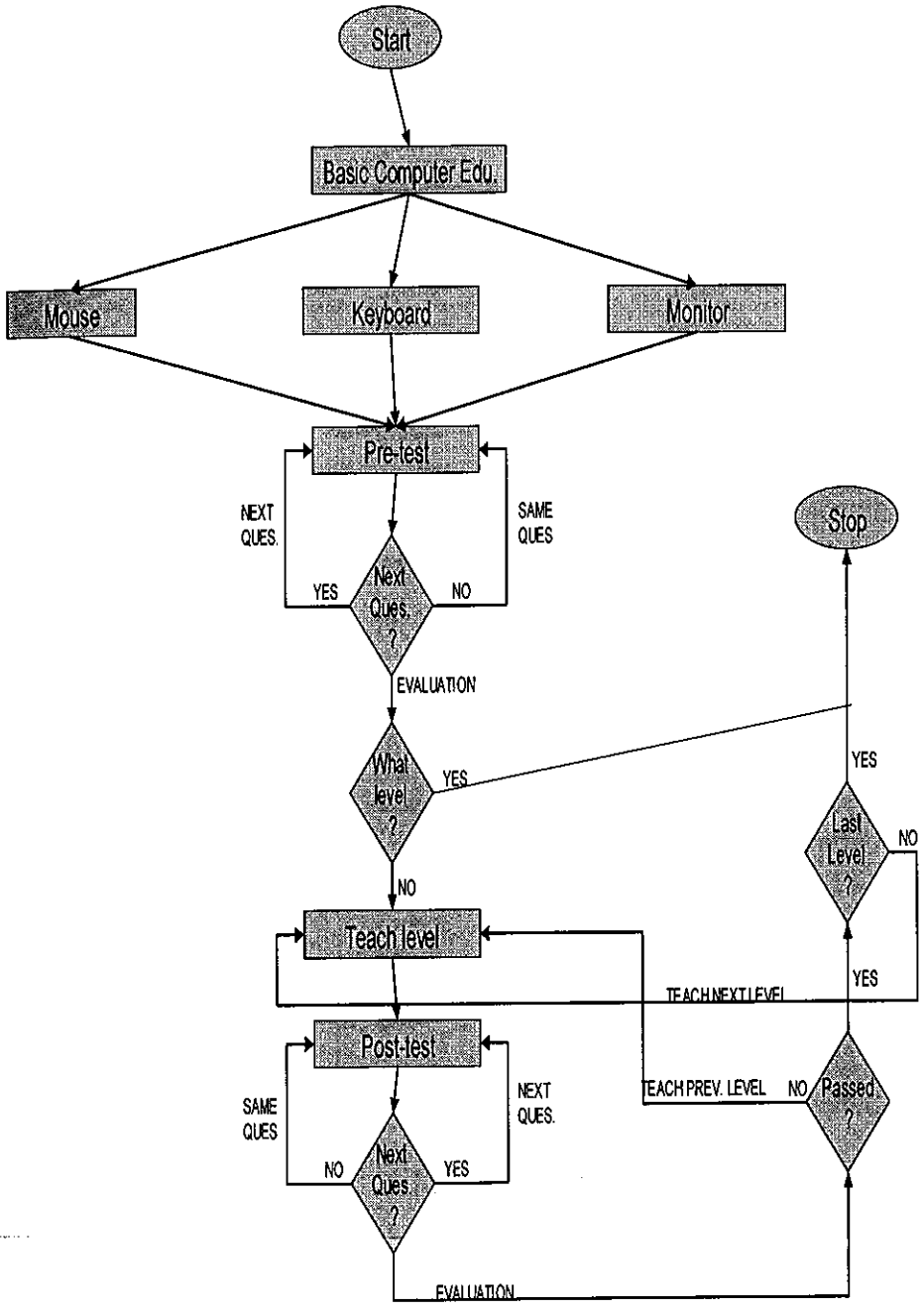

Fig.2-8 Flow chart

The figure above represents the flowchart of the small package that we have tried to develop. The package has been divided into two major modules:

I. Computer Education
II. Necessary Education

The computer education module deals with the teaching of the illiterate individual with the basic use of computers, so that he can use the computer to learn the basic or necessary education. The computer education tells him the various parts of the computer:

i) Monitor
ii) CPU (Central Processing Unit)
iii) Keyboard
iv) Mouse

There is a basic introduction to the monitor and CPU , telling about how these objects look so that the individual can identify them when he is sitting in front of a computer.
After teaching the basic of Monitor and CPU, the individual is taught about the keyboard and mouse. There are the basic information on these objects and gaming drills which allow us to make the individual acquainted with the new technology.

The Computer Education is complete; we enter the pre-test of the package which helps us to analyze the level of literacy of the individual. As the individual is acquainted with the mouse and keyboard he can use them to answer the question that is a part of the pre-test.
Every pre-test signifies a particular level on the Necessary Education module. If an individual fails a particular sub-section of the pre-test, he/she is taught that level in the Necessary Education module. In case the individual is proficient and passes all the pre-test is does not require to use this package as he is at power with the level of this package or at a higher level of literacy.

The pre-test module helps us to know what level is to be taught to the individual so, after giving a pre-test, supposing the individual is does not score the necessary marks to pass that test. The individual is then taught that level in the module, where is taught through examples, gaming drills and videos, with an interactive interface to have a realistic way of learning.

When the teaching of a particular level is over, a small test is conducted the post-test in which an analysis is done on how much the individual has learnt. This allows us to know if we need to teach the individual the same level again or we can take him onto another higher level in the education system of ours. In case the individual has cleared the last level post-test of the package he is at the level of literacy of the package, as the level of teaching is limited in the package as compared to the standard in the education system of the schools and this country.

2.5 Tools used:

2.5.1 Flash

Flash is a multimedia graphics program. Flash enables you to create interactive "movies".

2.5.2 Audacity

Audacity is a freeware that was used to record the sound requirements in the project.

2.5.3 Swishmax

Swishmax is a macromedia product that helps us in creating flash movies and a faster and a more interactive way.

2.6 Project Contents

- Text
- Visuals
- Animations
- Voice guiding system

2.7 Technical details:

In the project there is a use of six different buttons that are used to control any movie in the project. These buttons are listed as below:

- Minimize button – this button is used to resize the window to a smaller size.
- Maximize button – this button is used to resize the window to full screen.
- Close button – this button is used to close the application.
- Play button – this button is used to continue the movie from the point where it was stopped.
- Stop button - this button is used for stopping the movie at a certain point.
- Rewind button – this button is used to restart the current running scene.

The sound that is embedded in the movies is a streaming sound that plays in accordance with the video.

CHAPTER III

COMPUTER EDUCATION

3.1 General Computers

In this module the learner is made to learn about drawing, pronouncing and recognizing a Computer. Picture reading will help the learner in easily grasping of the object and the knowledge of the picture. Firstly the general use of a computer is being taught in which only the basic parts of the computer are told to the user. The user is given the information about what a computer looks like, various places where it can be used and what kind of help it offers to its users. Everything in this module is pronounced in Hindi.

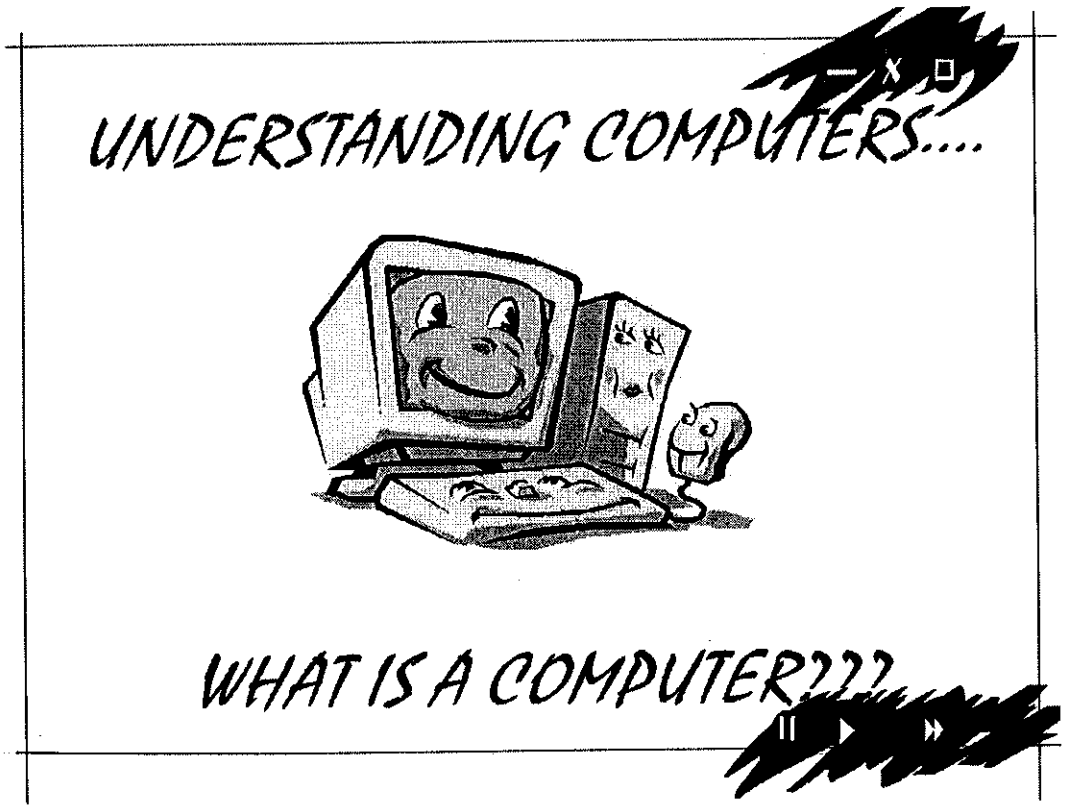

Fig.3-1 what is computer.

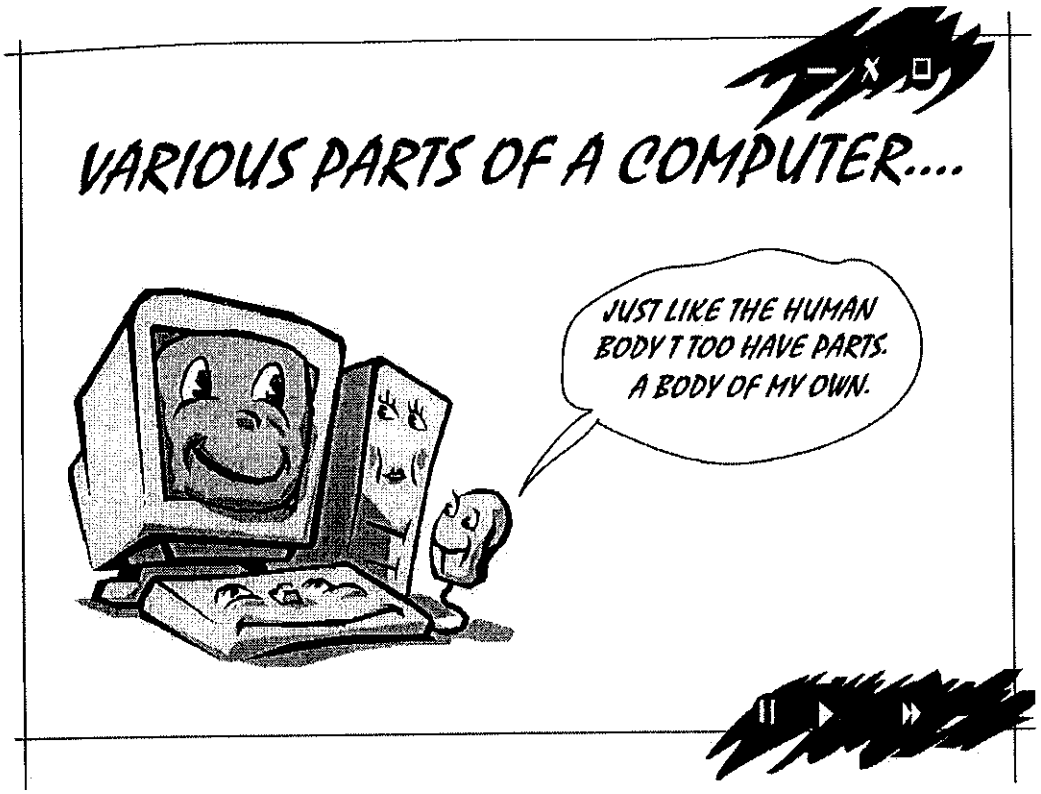

Fig.3-2 Parts of computer.

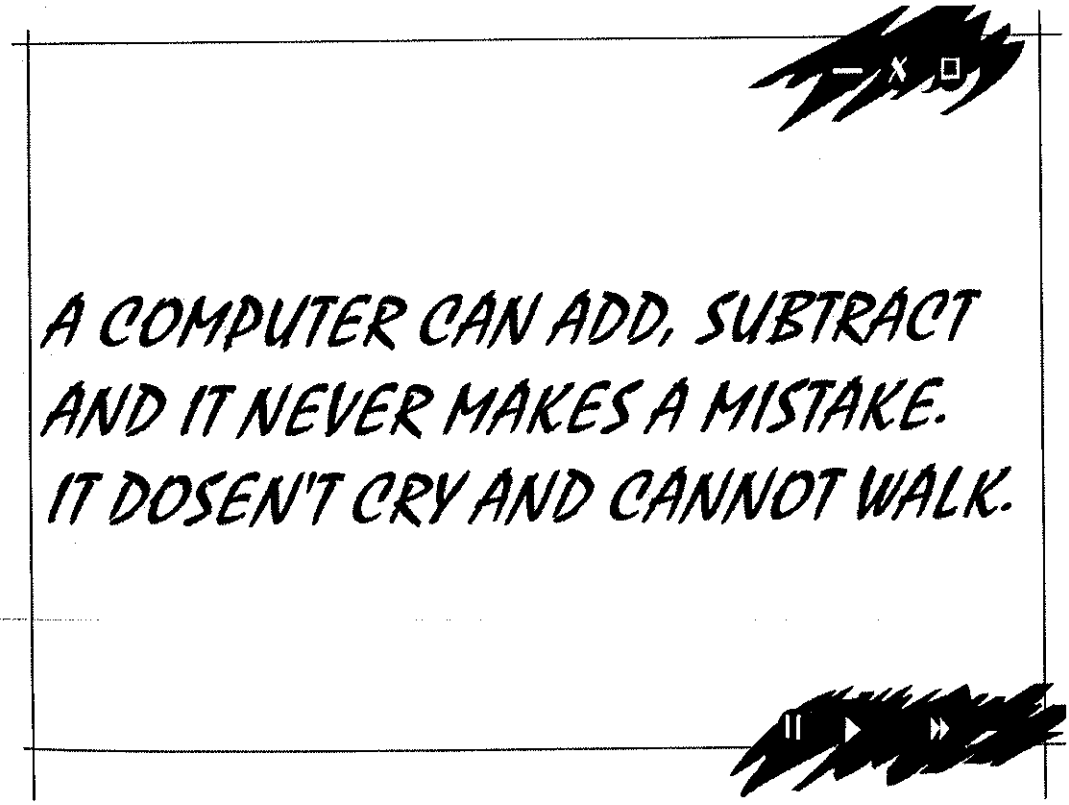

Fig.3-3 Tasks of computer.

3.2 Central Processing Unit (C.P.U.)

This module is totally dedicated for recognition and pronouncing a specific part of the computer i.e. CPU. This is done by showing the user a movie on CPU in which the user is told about the look, functionality, shape, uses and importance of the same.

Fig.3-4 Central Processing Unit (CPU)

3.1.2 Monitor

This module is totally dedicated for recognition and pronouncing a specific part of the computer i.e. Monitor. This is done by showing the user a movie on Monitor in which the user is told about the look, functionality, shape, uses and importance of the same.

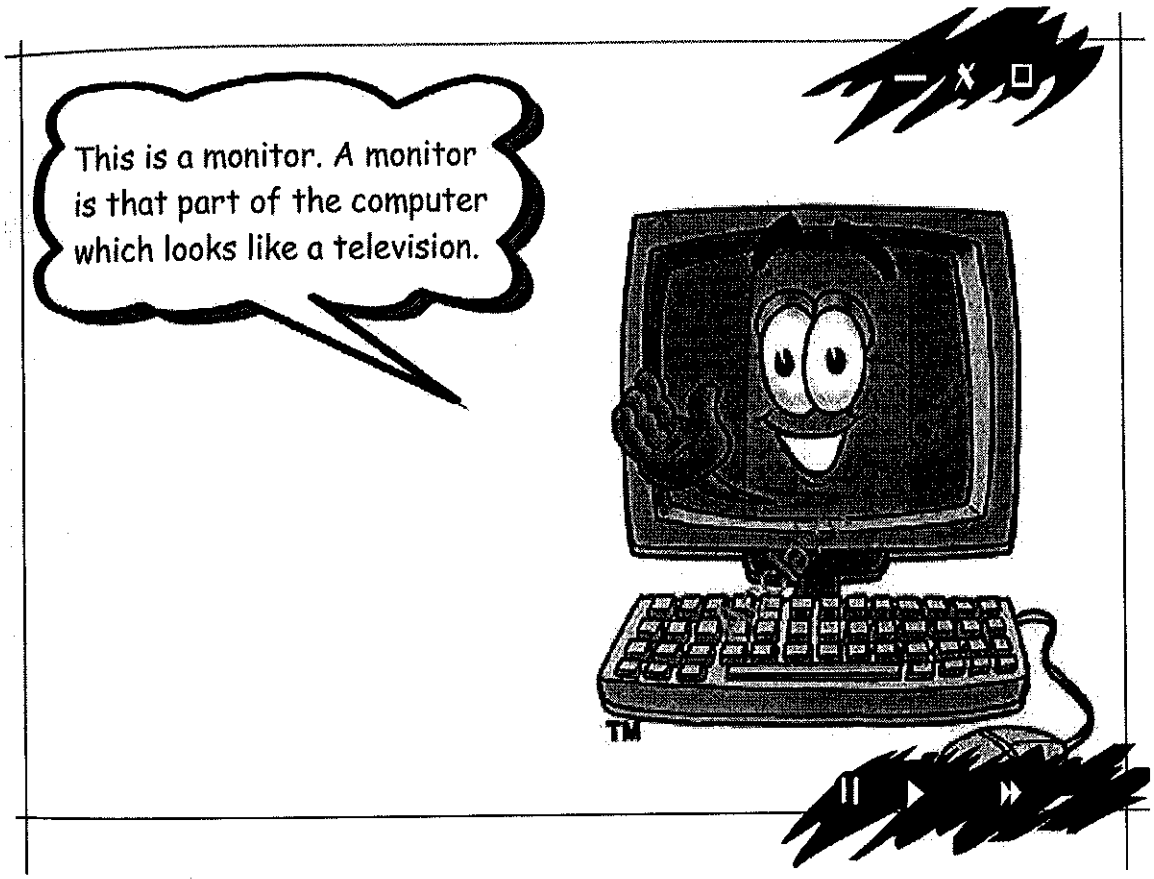

Fig.3-5 Monitor

3.4 Keyboard

A basic knowledge of keyboard is provided in this module. This is done by showing the user a movie on Monitor in which the user is told about the look, functionality, shape, uses and importance of the same. It also tells us about the different type of keys present on the device.

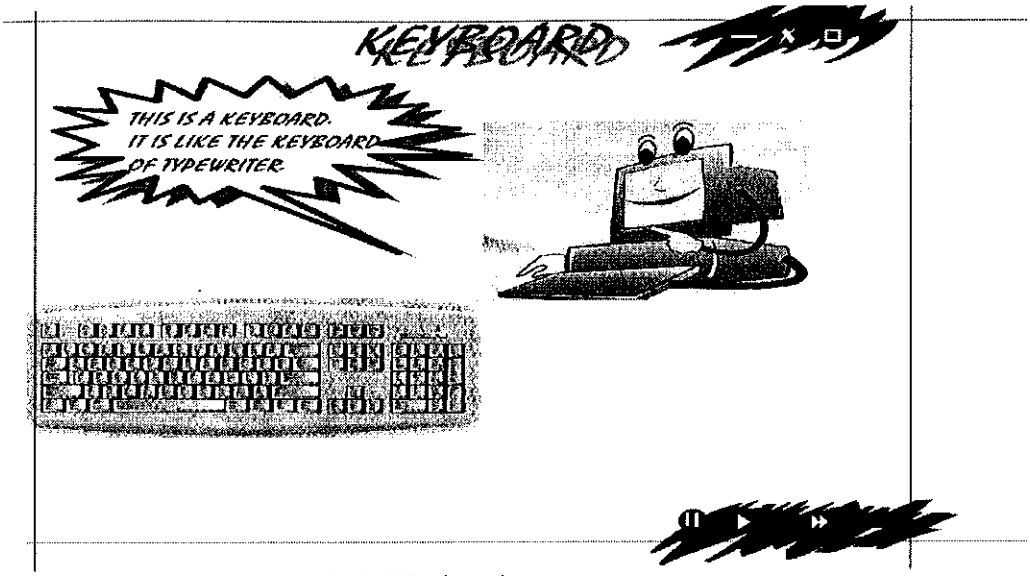

Fig.3-6 Keyboard

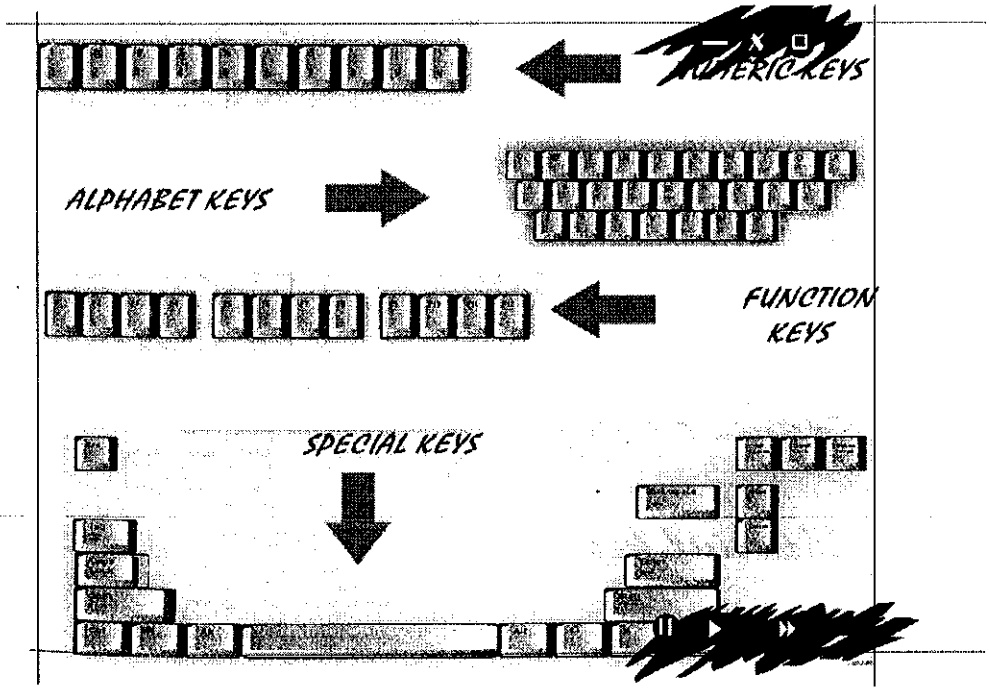

Fig.3-7 Keys in keyboard.

3.4.1 Keyboard drill

This drill is provided just after the keyboard module has been taught. In this drill the user is told to press any key on the keyboard and as soon as the key is pressed a sound telling about the key that is pressed is heard.

By introducing this drill we are letting the user know the different types of keys that are present on the keyboard and how are they pronounced. To end the drill the user has to click on the "next" button that is available on the right hand bottom side of the screen.

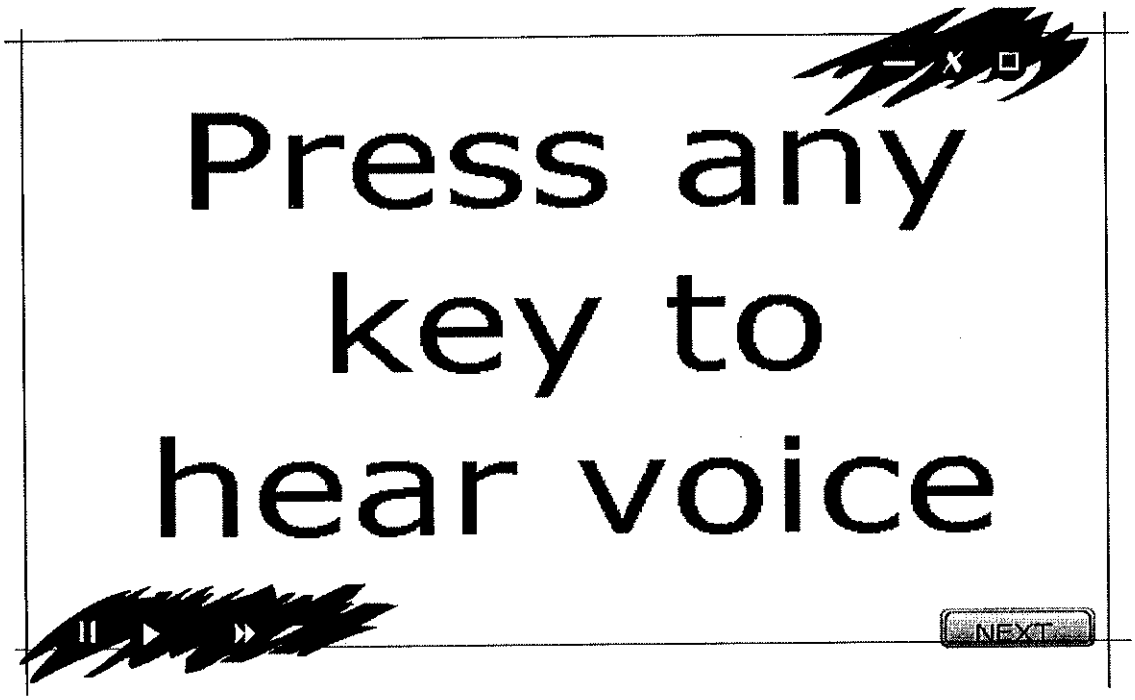

Fig.3-8 Keyboard drill

3.5 Mouse

A basic knowledge of mouse is provided in this module. This is done by showing the user a movie on mouse in which the user is told about the looks, functionality, shape, uses and importance of the same.

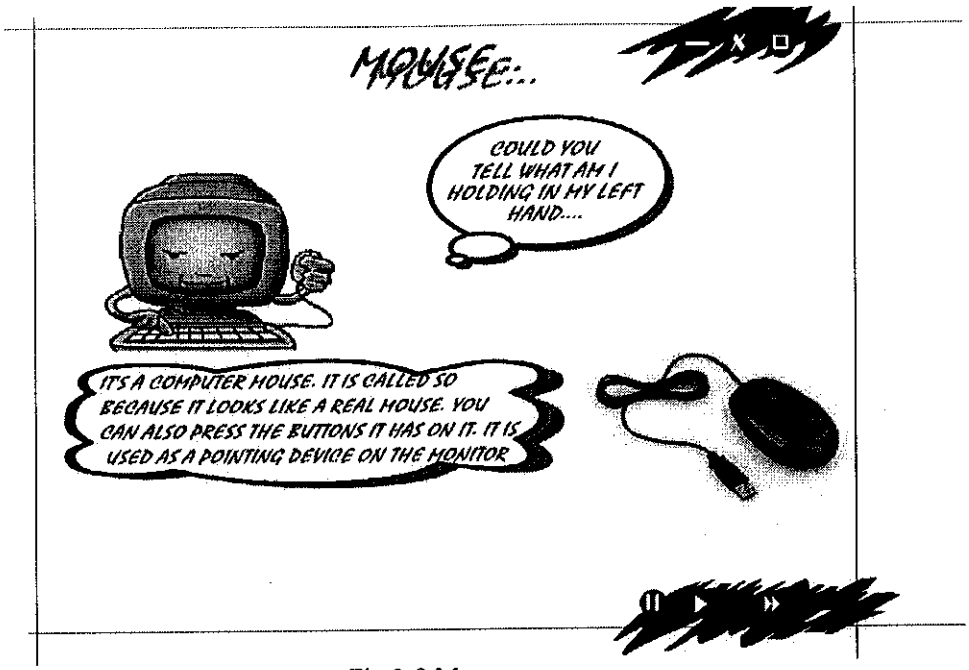

Fig.3-9 Mouse

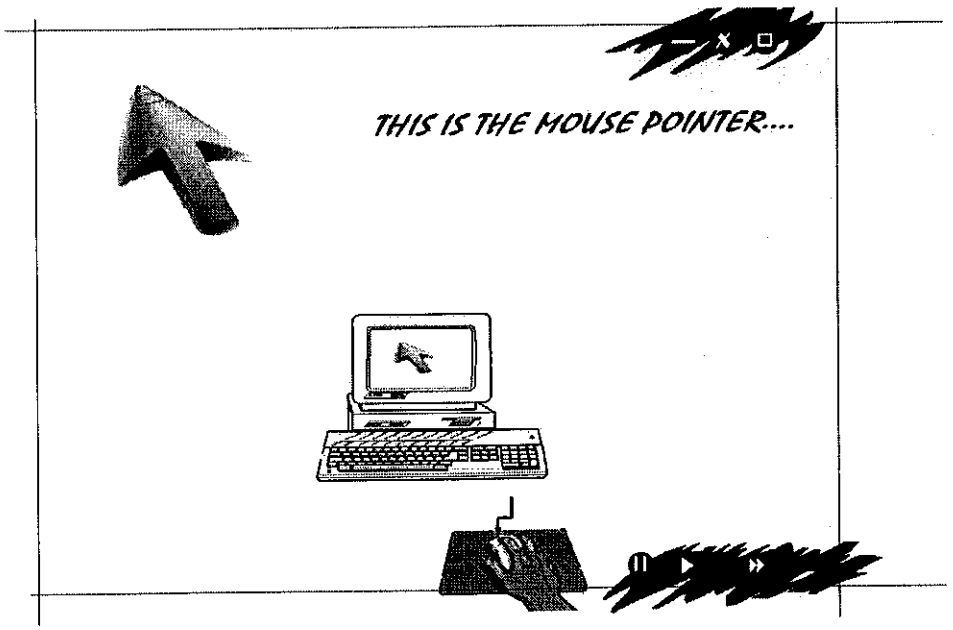

Fig.3-10 Mouse pointer

3.1.4 Mouse Test

This module is introduced after the user is accounted with the basic knowledge of the mouse device. This test is divided into two levels.

First is the pointer moving test. In this the user will be shown a blinking image on the screen and user will have to bring the mouse pointer over the blinking image so as to clear the test. These images will appear in three different positions on the monitor. The user has to move the pointer on all of them one by one.

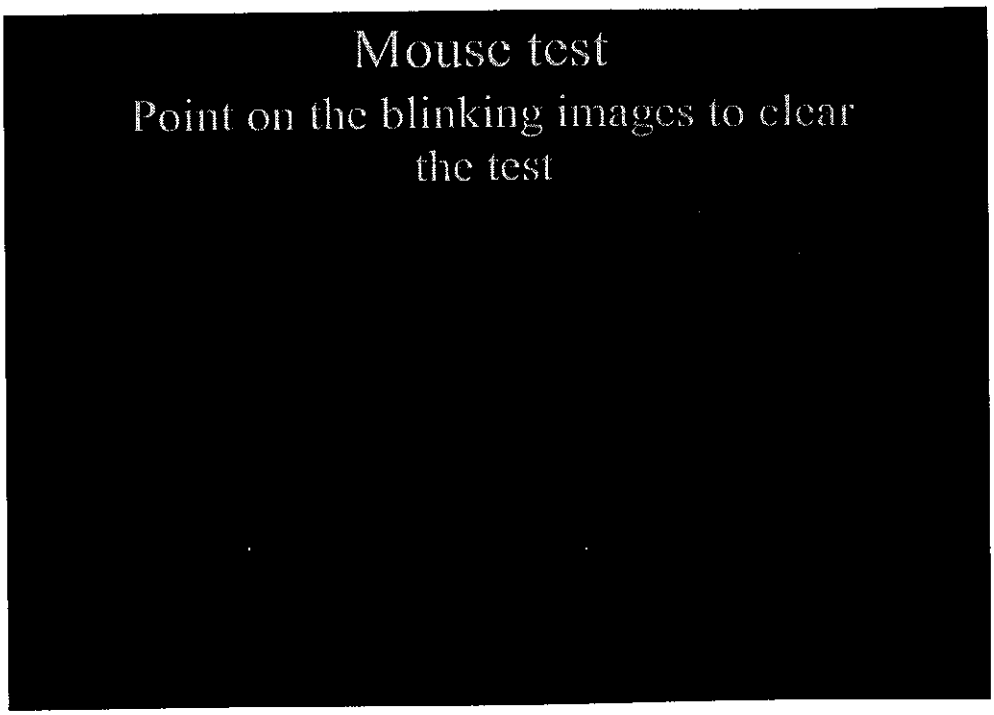

Fig.3-11 Mouse test-1

In the second test the user is told to hold the mouse in his hand and move the mouse pointer on a red colored button that will be shown on the screen. The user has to click on that button so as to clear the test. These buttons will appear in three different positions on the monitor. The user has to click the pointer on all of them one by one.

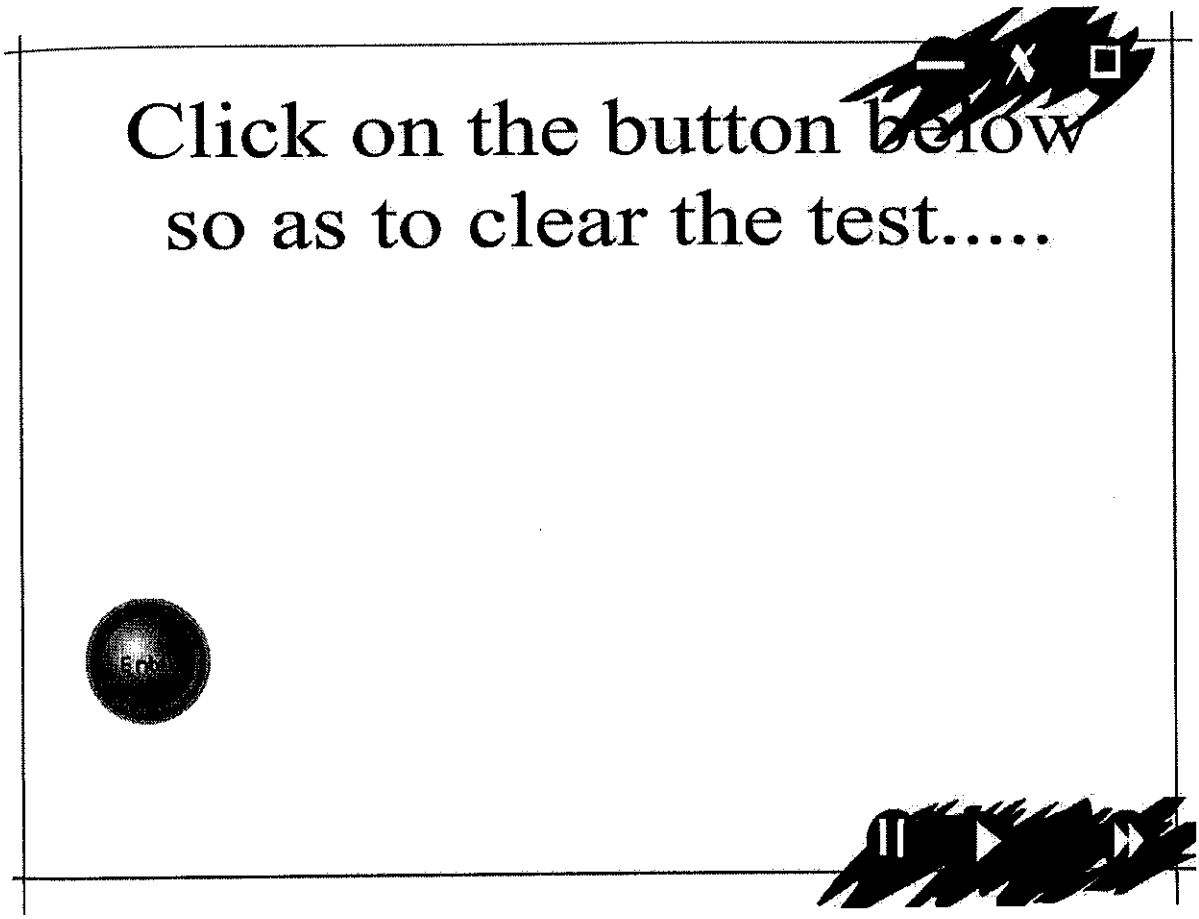

Fig.3-12 Mouse test-2

CHAPTER IV
NECESSARY EDUCATION

4.1 English learning

4.1.1 Capital and Small letters

In this module the learner is made to learn about drawing , pronouncing and recognizing the English alphabets. Picture reading will help in easily grasping of the alphabet and the knowledge for English word of the picture, the learner will see. Firstly the capital letter is being taught in which only one word is made to learn while in small letter two words i.e the word taught in capital letter module and one new letter is being taught.

Key feature:

i. For better interactivity and learning the movie does not move further till the alphabet which is being taught is pressed from the keyboard, this is guided by a voice response. Pressing of wrong alphabet will lead in repeating the same movie of the alphabet, which reflects the recognizing power of the learner.

ii. Repeating of words in small letters is a process of repetitive learning.

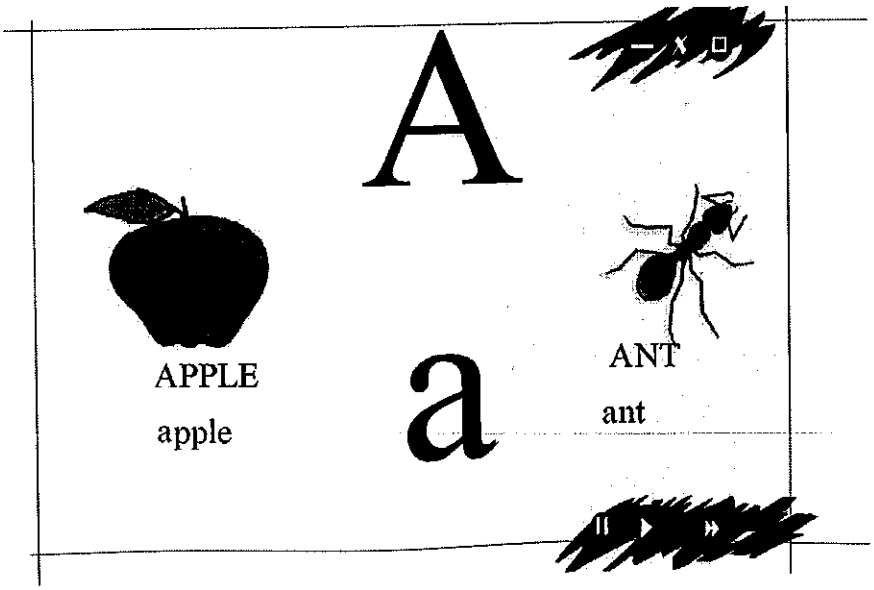

Fig.4-1 English alphabet

4.1.2 Repetitive Drill for alphabet

This module is totally dedicated for recognition and pronouncing the alphabet repeatedly. This is done by making each alphabet as a button. Clicking the button will pronounce the corresponding alphabet.

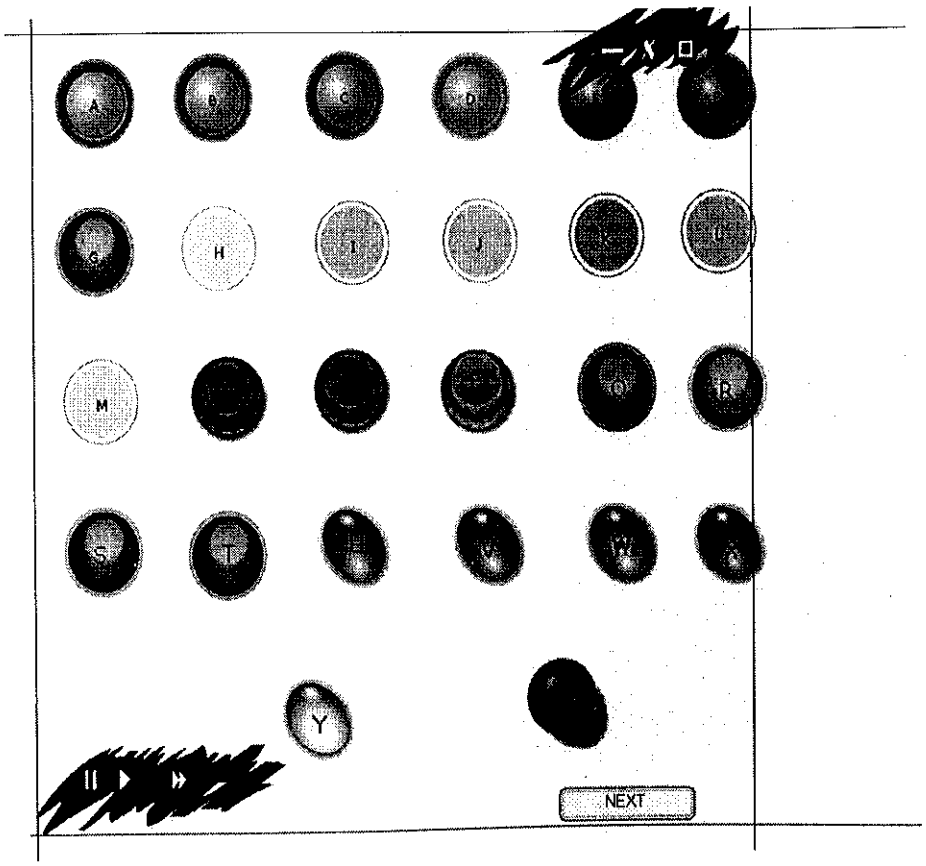

Fig.4-2 Repetitive drill 1,alphabets

4.1.3 Photo drill

While teaching the small and the capital letter, the learner came across many words .Its strange to make learn all the words in English that is necessary but to avoid the case, we introduced this drill which will make the learner learn most of the word in daily use.

In this drill the word is pronounced in Hindi as well as in English.

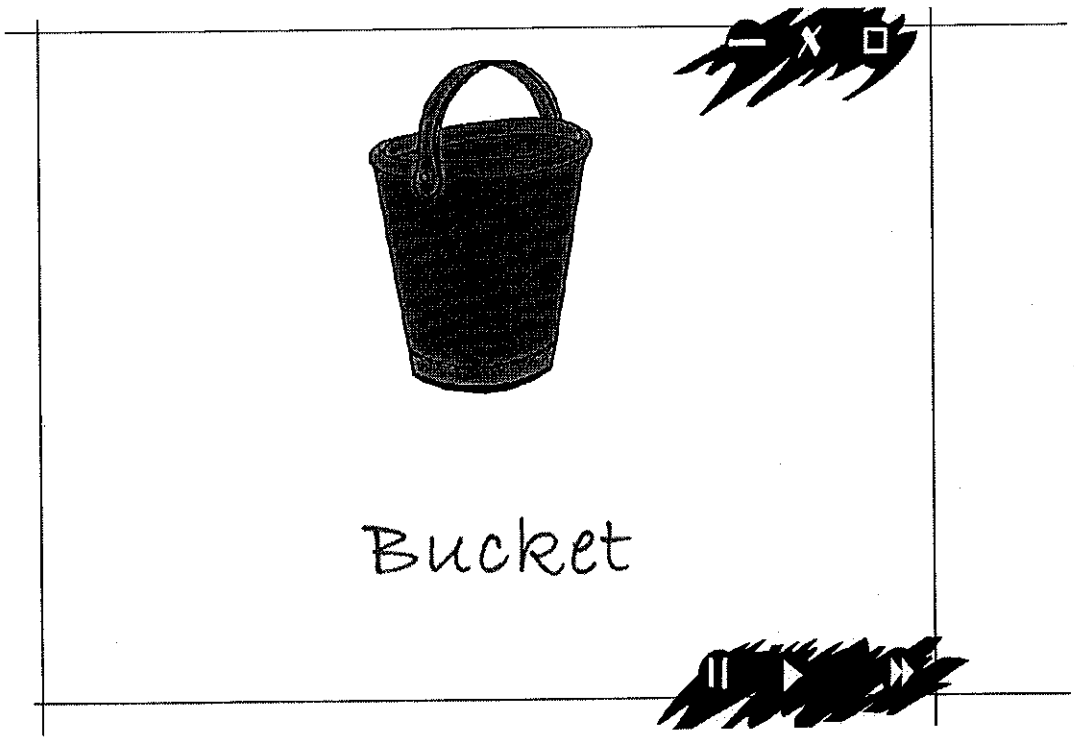

Fig.4-3 Photo drill

4.1.4 *Vowel, Article and preposition*

A basic knowledge in creation and understanding of the sentence is provided in this module. In vowel module, introduction of 5 vowels and their sound in some words are presented as vowel sound differently when used with consonants.

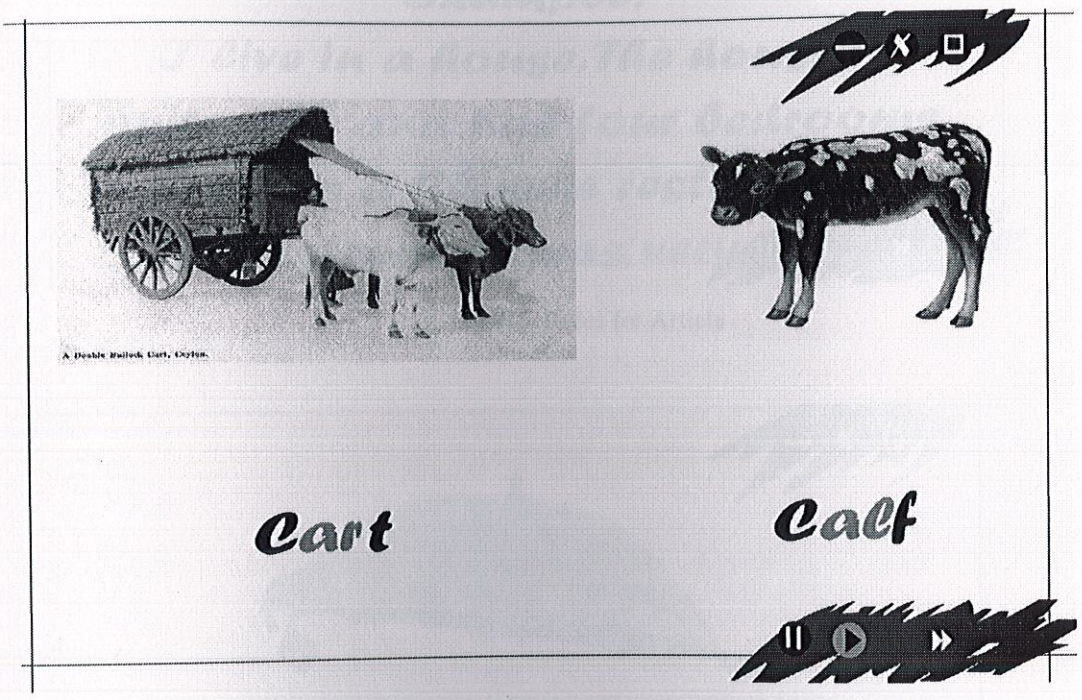

Fig.4-4 Vowel

4.1.4 Vowel, Article and preposition

A basic knowledge in creation and understanding of the sentence is provided in this module. In vowel module, introduction of 5 vowels and their sound in some words are presented as vowel sound differently when used with consonants.

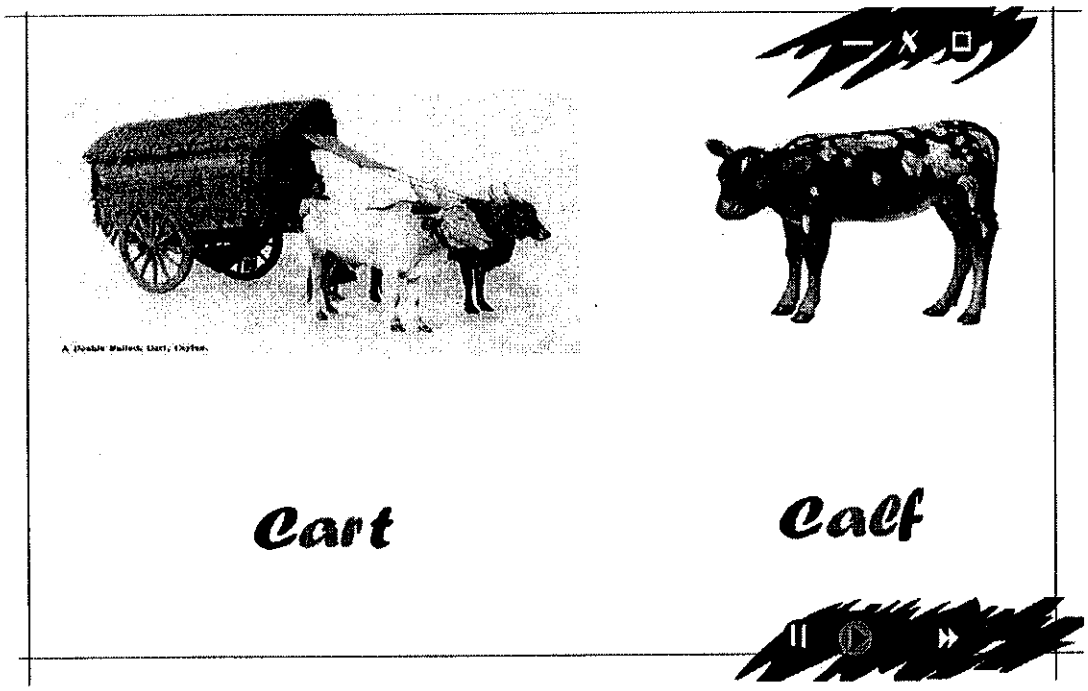

Fig.4-4 Vowel

Uses of article are explained with rules and some simple example.

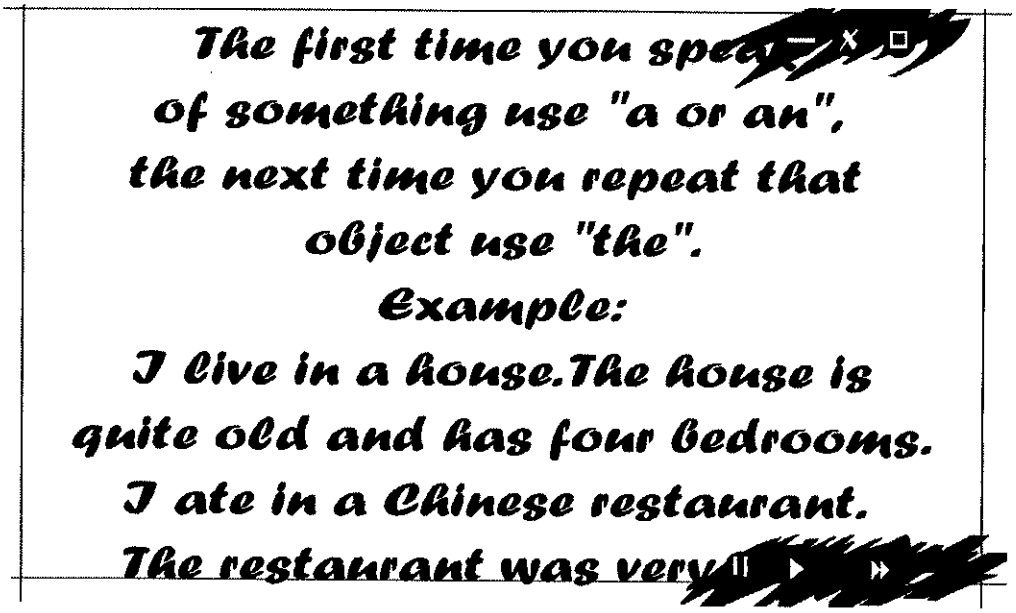

Fig.4-5 Rules for Article

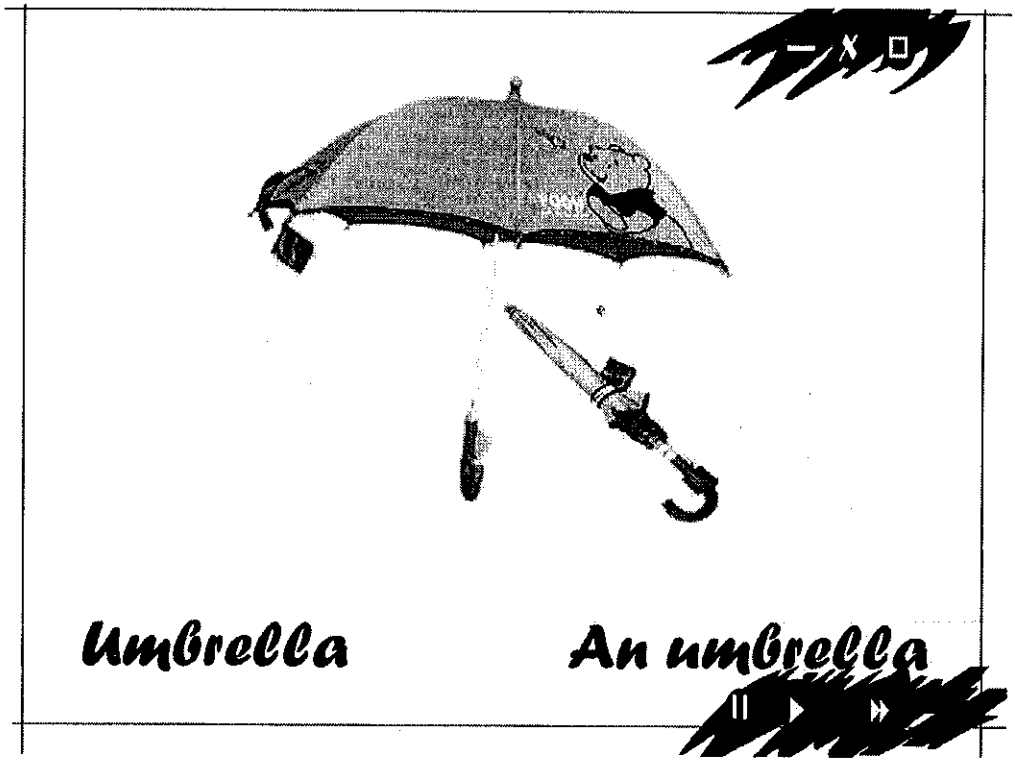

Fig.4-6 Article

The two most common preposition 'in' and 'on' are explained with some simple sentences.

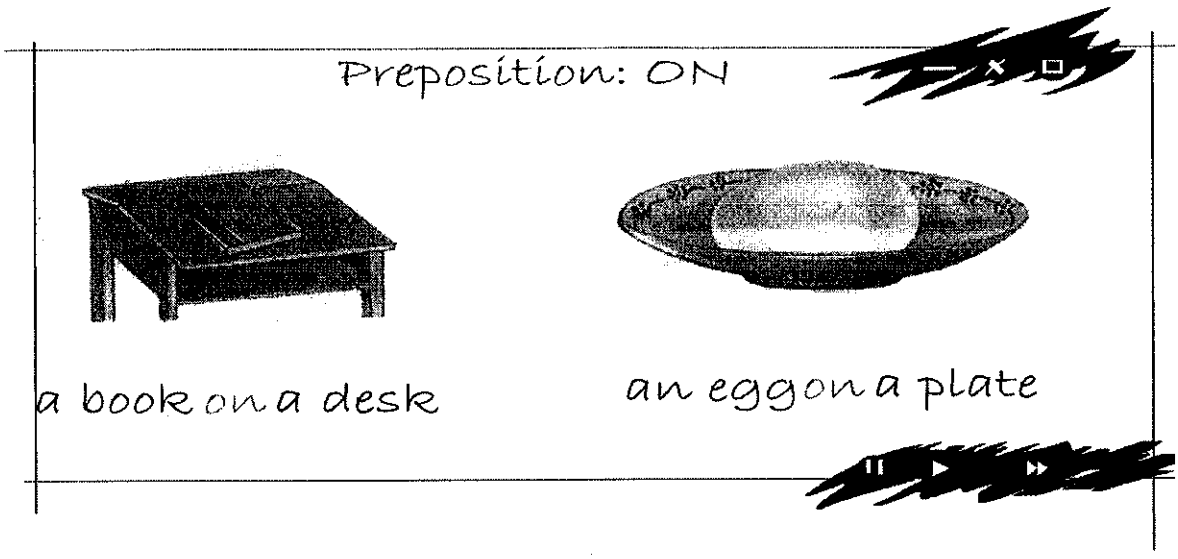

Fig.4-7 Preposition, ON

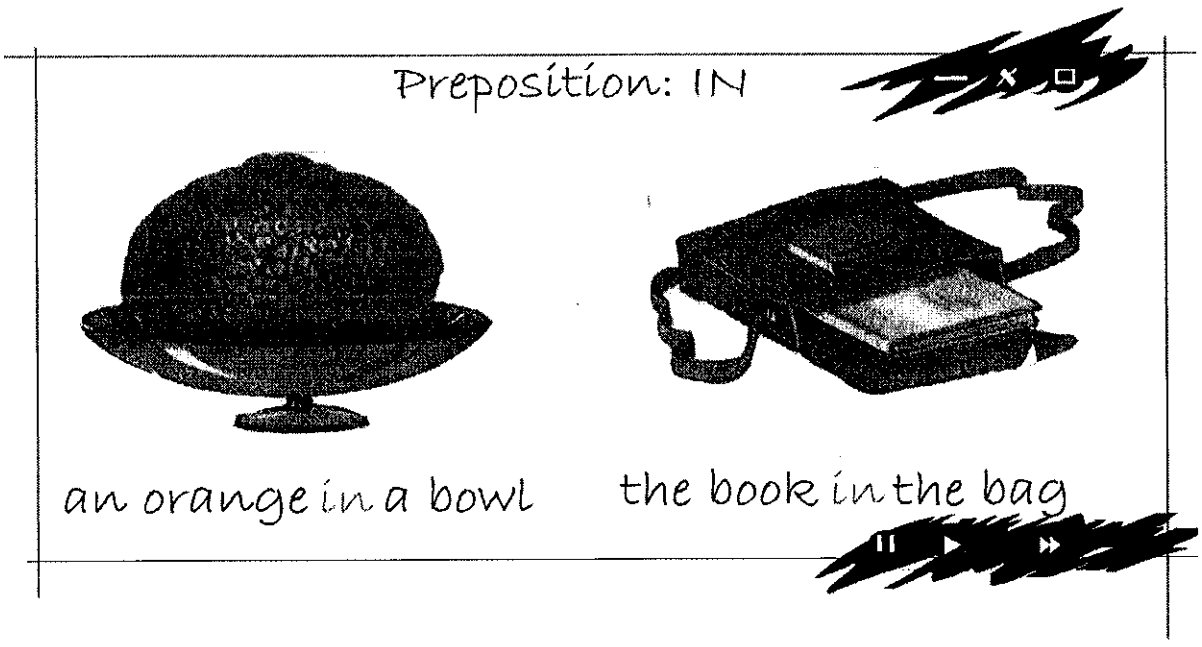

Fig.4-8 Preposition, IN

4.1.5 Sentence drill

This drill is provided in three parts, first after the vowel second after the article and the last after the preposition. The difficulty level of each part is better than the last one.
This module is provided for a better understanding of sentence formation apart from preposition and article.

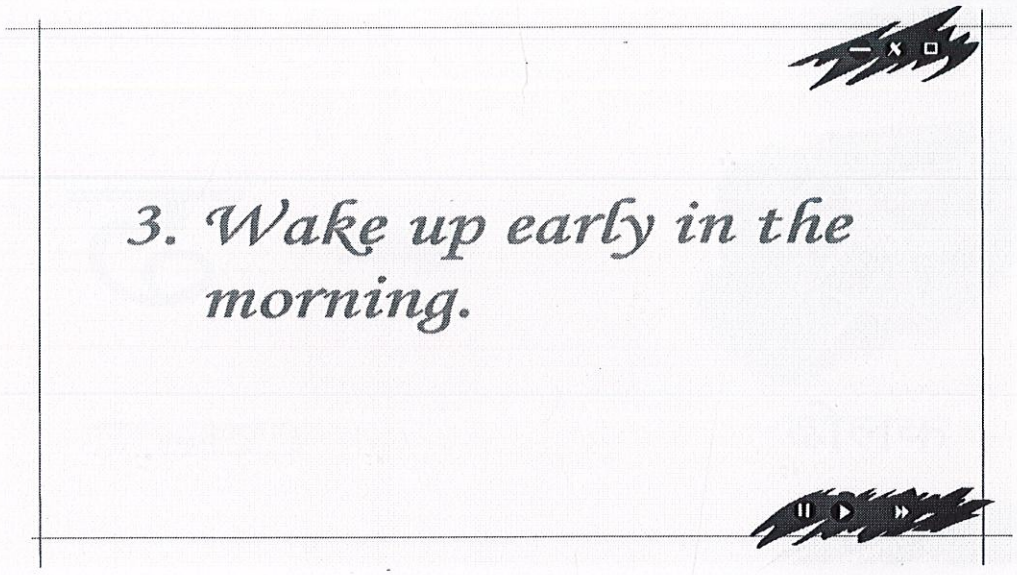

Fig.4-9 Sentence Drill 1

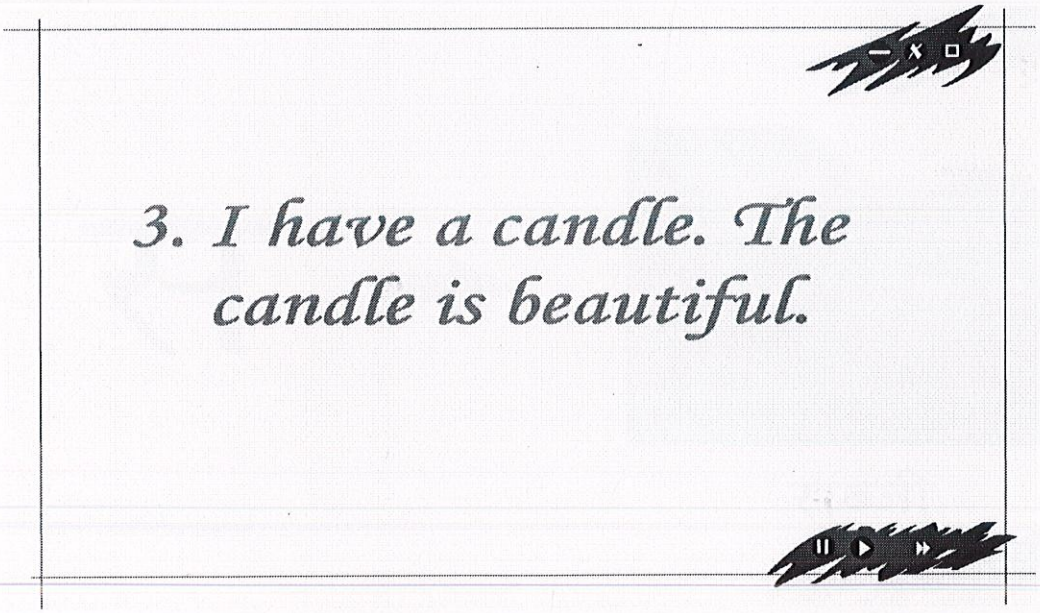

Fig.4-10 Sentence Drill 2

4.2 Hindi learning

4.2.1 Hindi letter

In this module the learner is made to learn about drawing, pronouncing and recognizing the alphabets. Picture reading will help in easily grasping of the alphabet and the spelling of the picture presented.

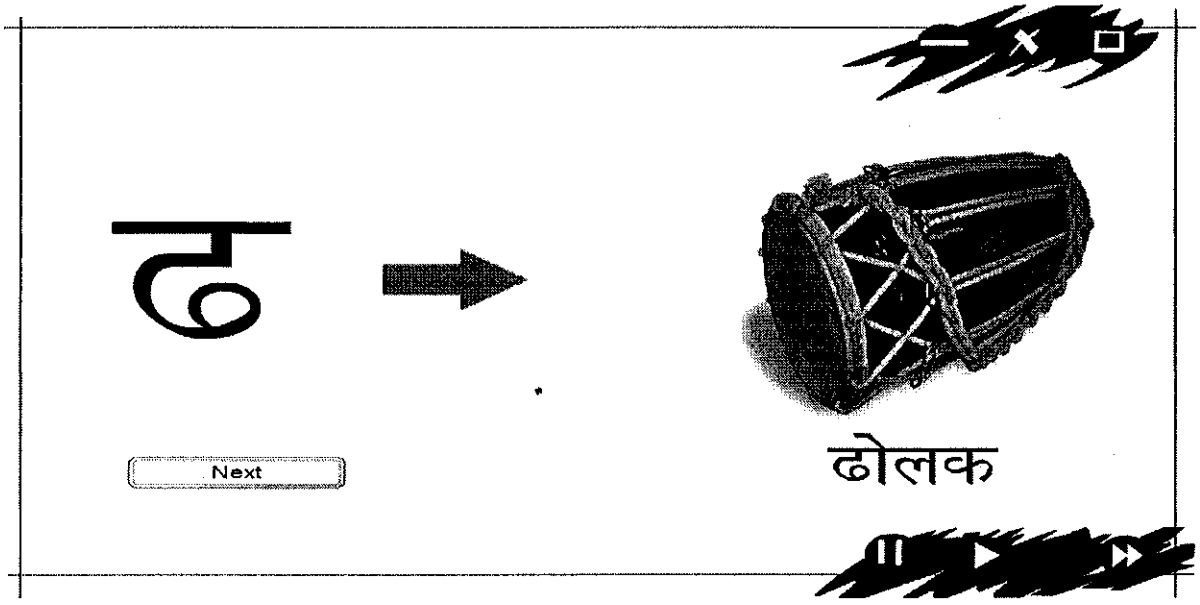

Fig.4-11 Hindi Alphabet 1

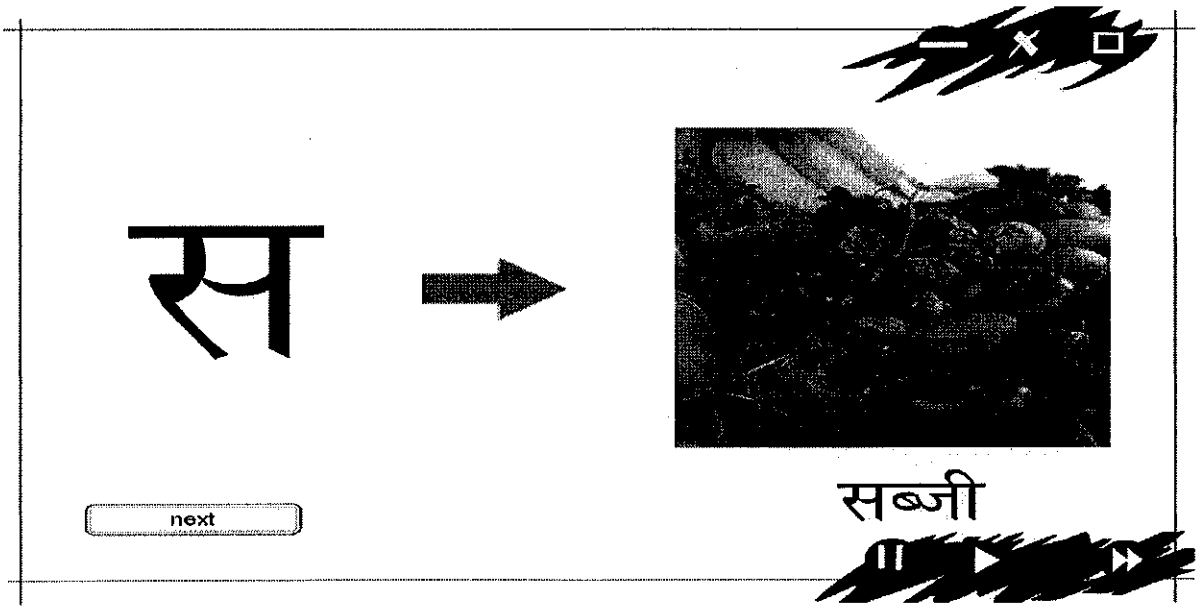

Fig.4-12 Hindi Alphabet 2

4.2.2 Word Formation

This Module describes the formation and pronunciation of words. It is divided into two sections:

- Two letter word.
- Three letter word.

Along with the word it even displays the picture of the corresponding word. only simple non Matra word are taught at this stage .

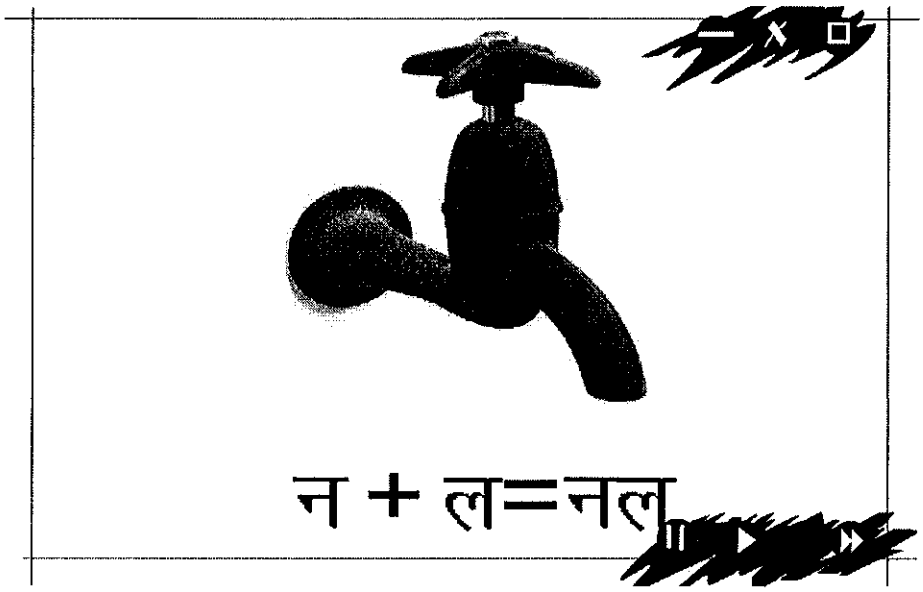

Fig.4-13 Hindi word formation

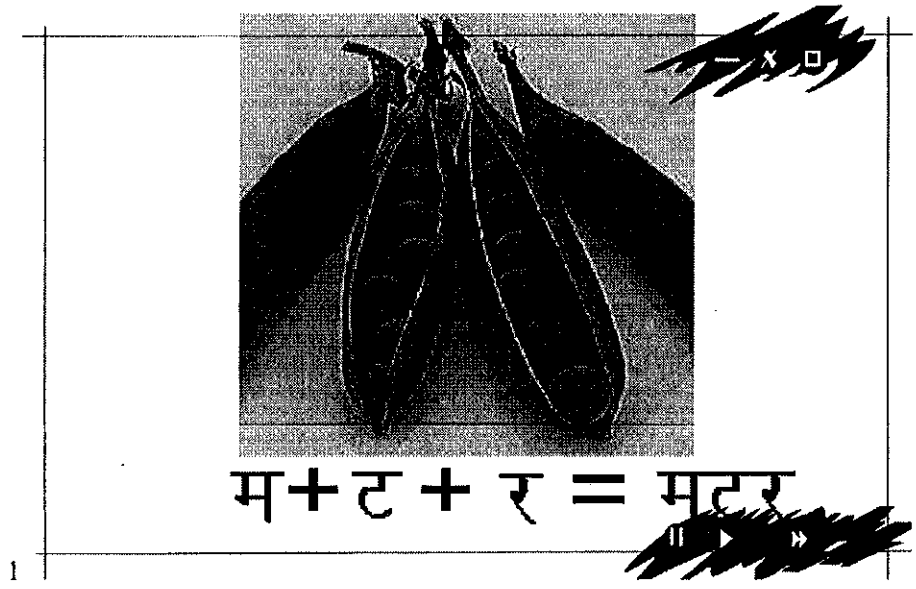

Fig.4-14 Hindi word formation 2

4.2.3 Matras in Hindi

There are thirteen Matra in Hindi. Each are explained with six examples .The examples covers all most all type of uses of Matra.

The Matra explained are: vk]b]bZ]m]mw]_],],s]vks]vkS]va] Wa]v% .

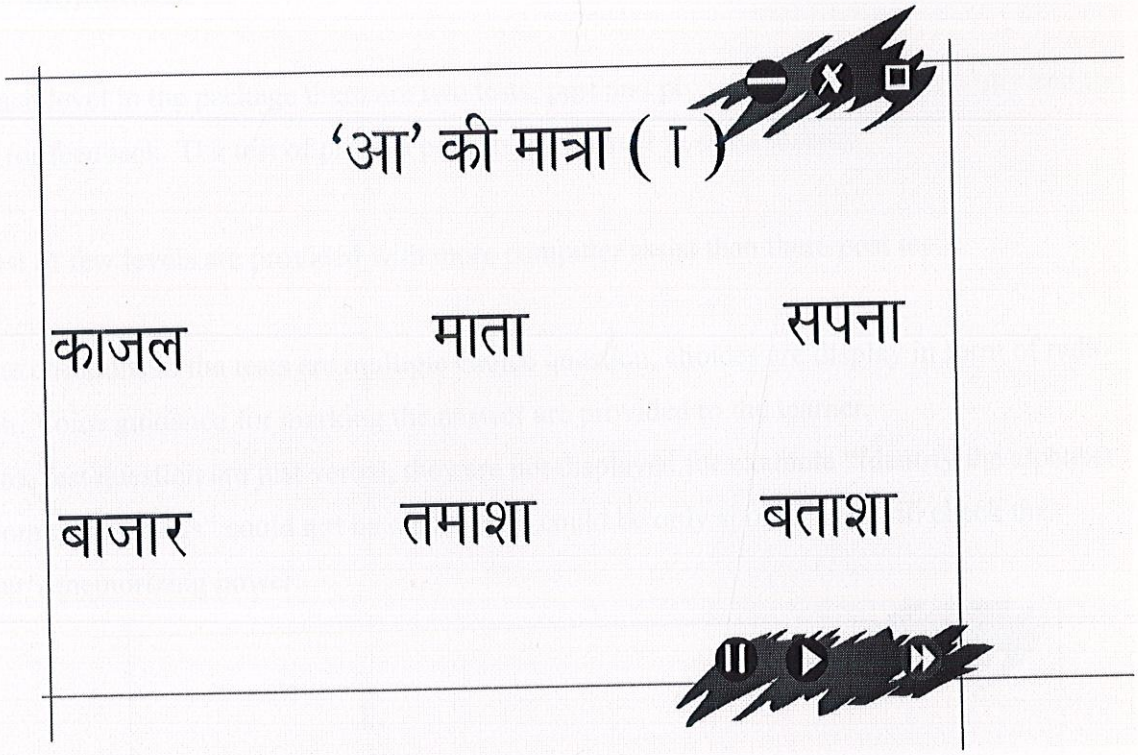

Fig.4-15 Hindi matra

CHAPTER V
TEST

5.1 Introduction

For each level in the package there are two tests, post and pre test i.e. one for eligibility and the other for feedback. The test of pre and post are performed in same fashion.

Pre test of few levels are provided with more computer assist than there post test.

All the questions in the tests are multiple choice question, choices are display in form of radio button. Voice guidance for marking the answer are provided to the learner.
In some test question are just verbal, they are not displayed for example "Identify the alphabet 'a' from given words" could not be displayed it could be only spoken as it will check the learner's memorizing power.

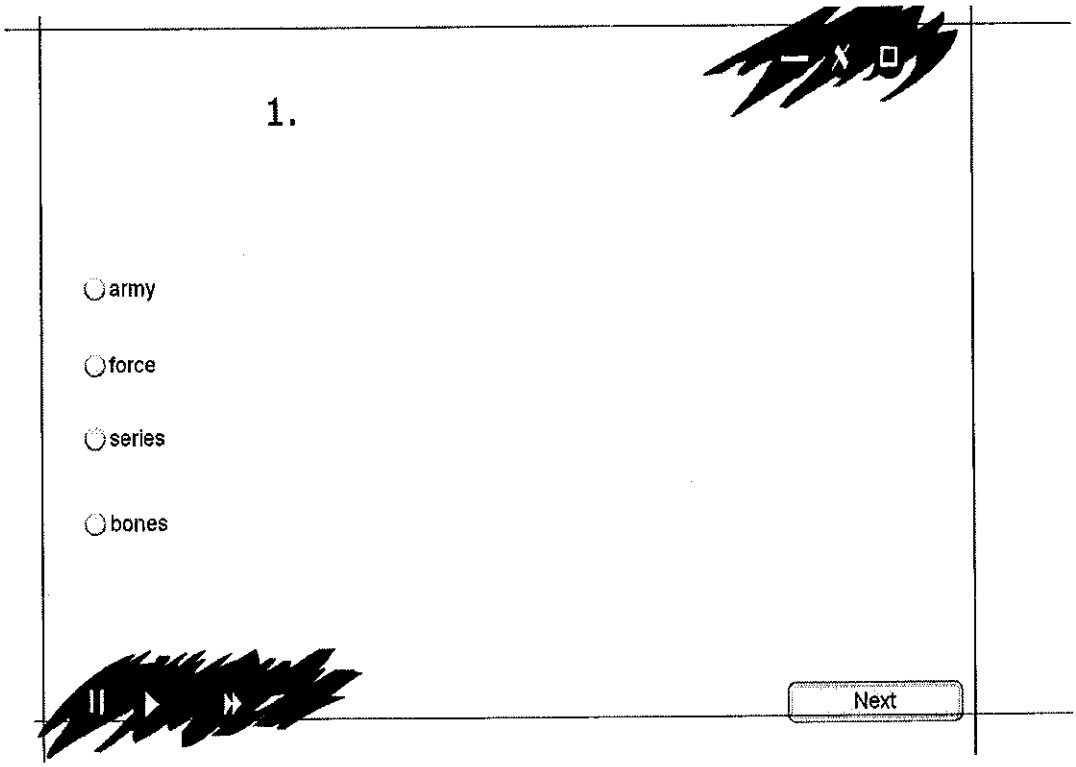

Fig.5-1 Test 1

5.2 Goodness of the test

Generally there are four to five question in a single test .The question are order in increasing order of difficulty, so the weightage of the questions are in increasing order of the presentation .For easy and early level in English or Hindi, the test clearing criteria is kept high while as the learner move to the more complex and difficult levels the criteria is more relaxed.

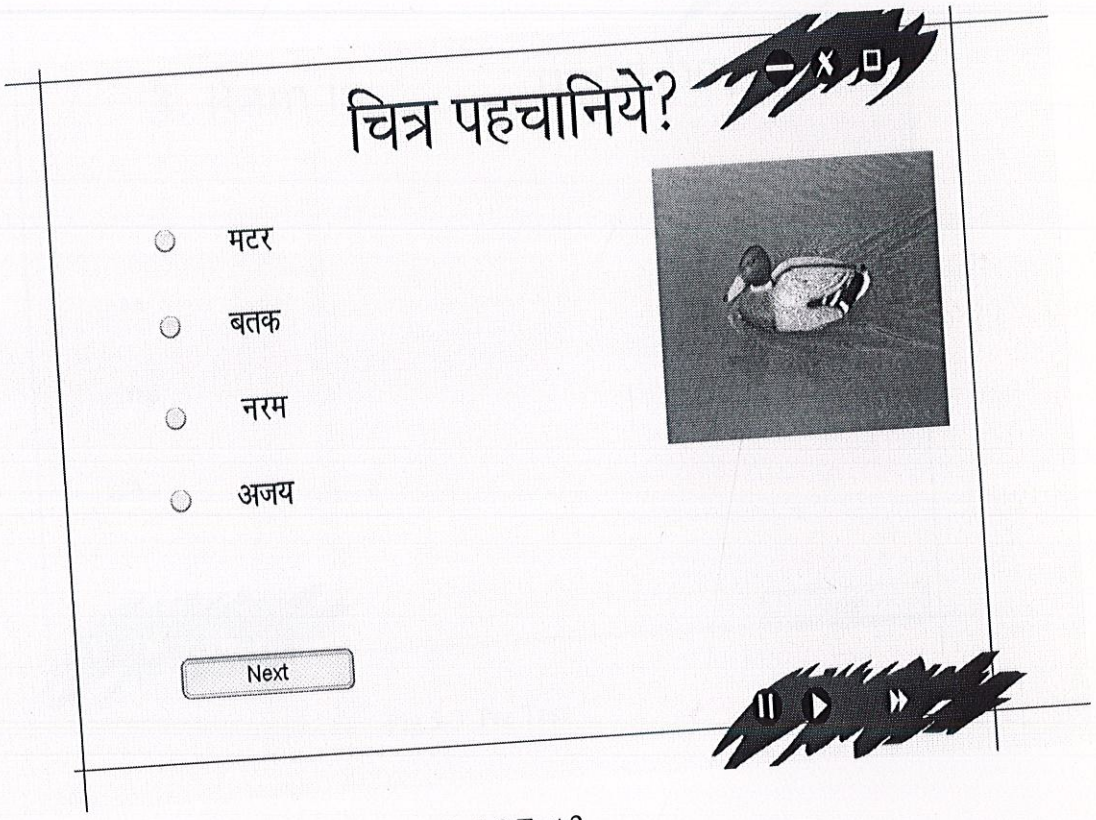

Fig.5-2 Test 2

5.1.4 Pre test

The test tells us the capability of the student that will be taught with the help of the system. The test allows us to know the level at which the student is and from what level is the student required to be taught.

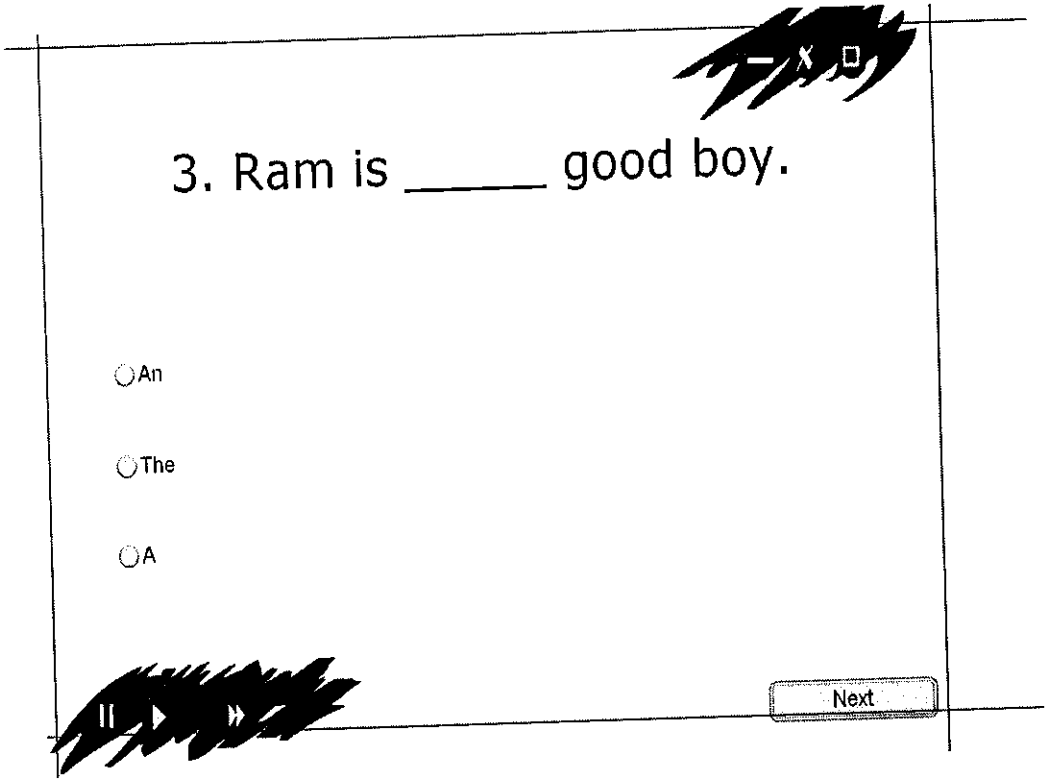

Fig.5-3 Pre Test

5.4 Post test

The post test is conducted on the data that is taught to the individual. This allows us to know how well the individual has grasped the material that is taught to him, if he does not qualify the test then he has to repeat the same level again.

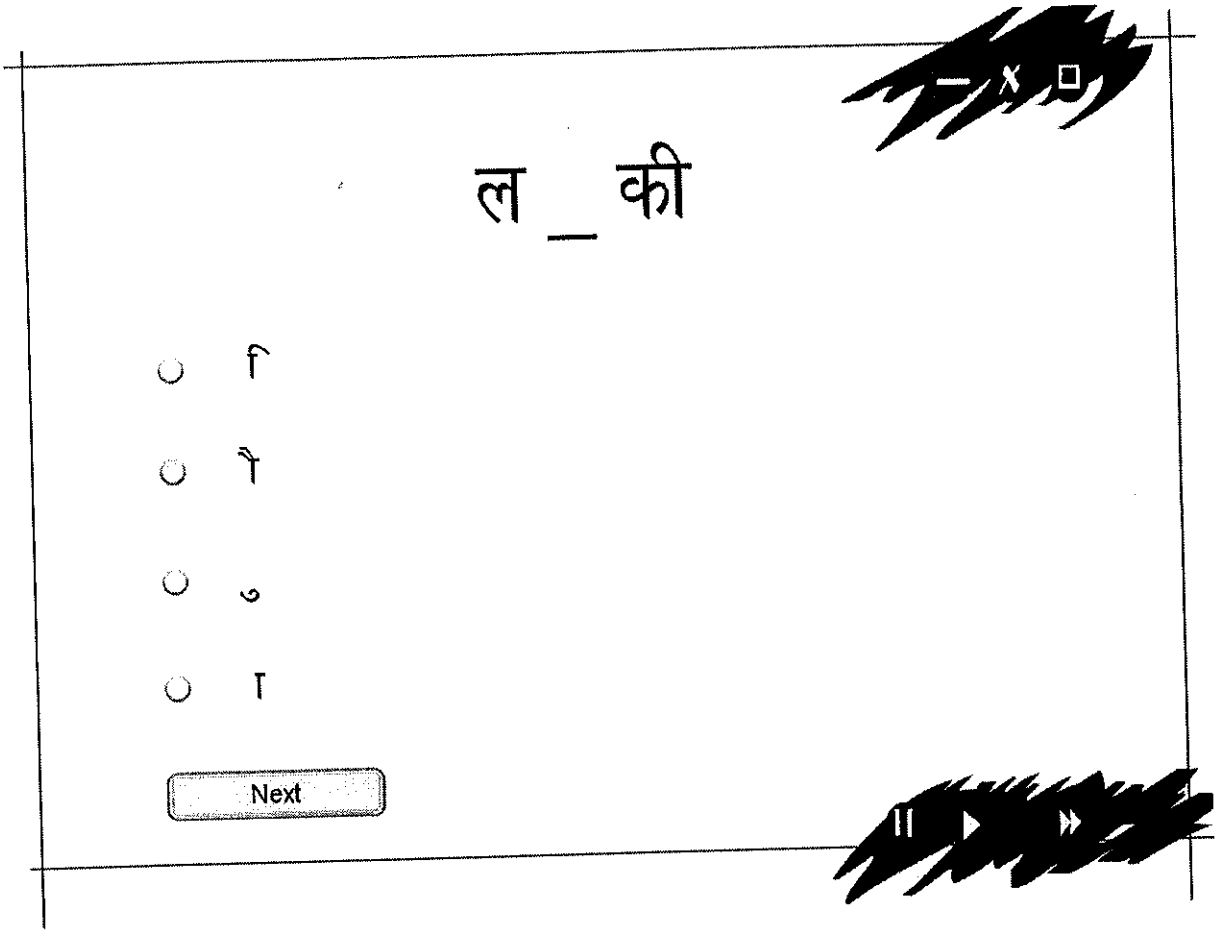

Fig.5-4 Post Test

CHAPTER VII
CONCLUSION

The project makes an illiterate learn about the basics of languages English i.e. alphabets, articles, preposition, vowels, the word and sentence formation and Hindi i.e. alphabets, word formation, use of matra which will make the learner step up in life. The learner is also made to learn about computers which are a necessary component in today's world.

The project can be given a new dimension as it can be further extended in the field of mathematics, science or medication for the uneducated. With this advancement the uneducated can be told about the advancement in today's world in the respective fields. There can also be an introduction of touchpad, voice recognition system and finger print recognition so that the user can interact with the system in a more convenient way while learning about the material. in future, language learning can be made simple by using artificial intelligence techniques in which the parser would check the syntax and semantics of the language. This could even provide more interactivity as the system itself could correct the user about his language.

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- Indra Rathi, Bhasha Sangam, Bookman India Publications.
- Reenu Mangla, Learning computers, Bookman India Publications.
- www.wikipedia.org
- www.journalism.berkeley.edu/multimedia
- http://eric.ed.gov/ERICWebPortal

APPENDIX A

A.1 Inroduction

In this appendix, we introduced the technical development of the movies of our system. We provided the action script, the behaviors of various created symbol, the motion guide effect, the picture effect and many more.

A.2 Movie control buttons

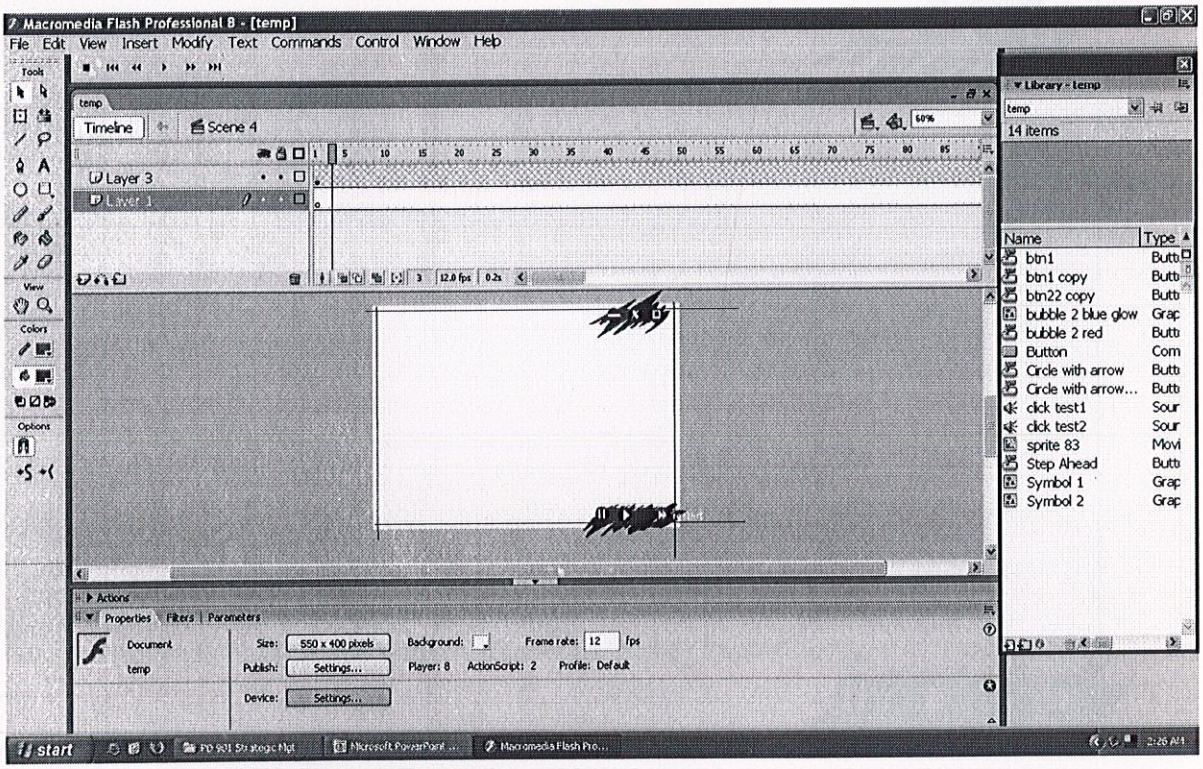

Fig.A-1 Control button design

The above image is the representation of the frame that has been applied to each and every scene in the flash movies that are used to teach the user. There is an application of actionscript on each button that is the part of the entire frame.

A.2.1 *Actionscript:*

1. fscommand ("fullscreen", "false");\
2. fscommand ("quit");
3. fscommand ("fullscreen", "true");
4. stop();
5. play();
6. gotoAndPlay(11);

these are the standard commands to play, stop, maximize, minimize, and relay a particular screen on the release of a button symbol.

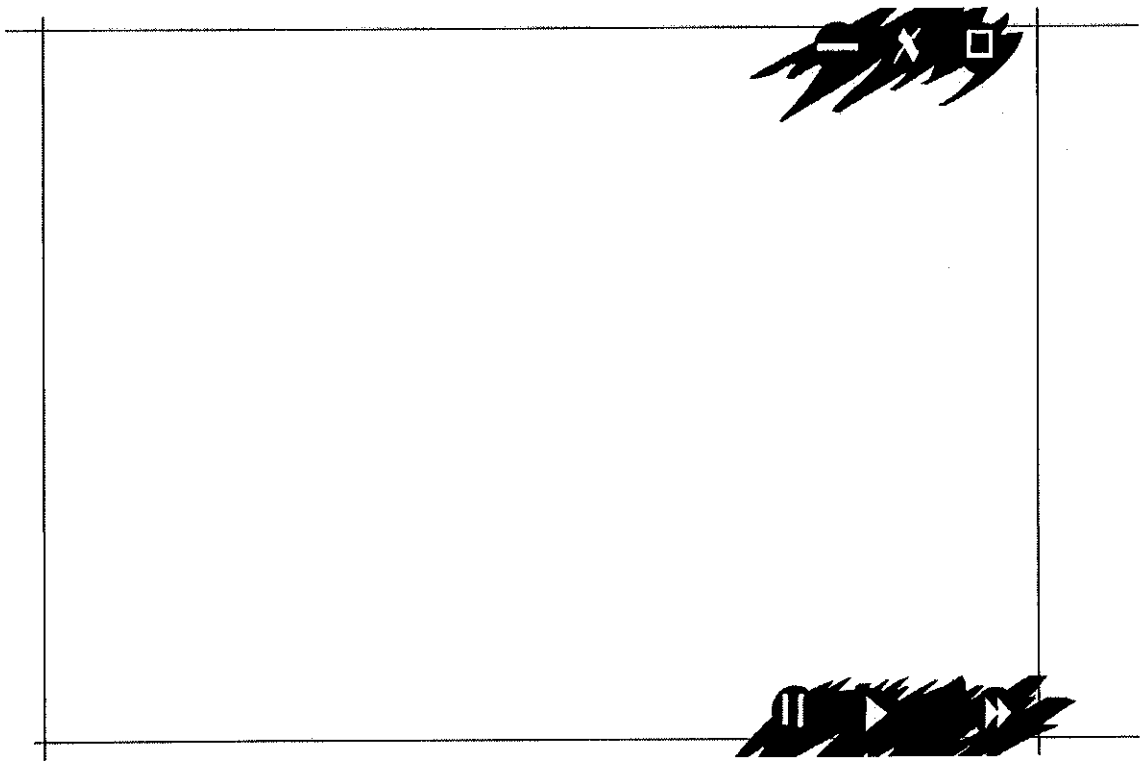

Fig.A-2 Control buttons working

This is the final output of the frame without any content. This frame has been applied to allow the user to stop the movie or play the movie to his convince.

A.3 Capital letter

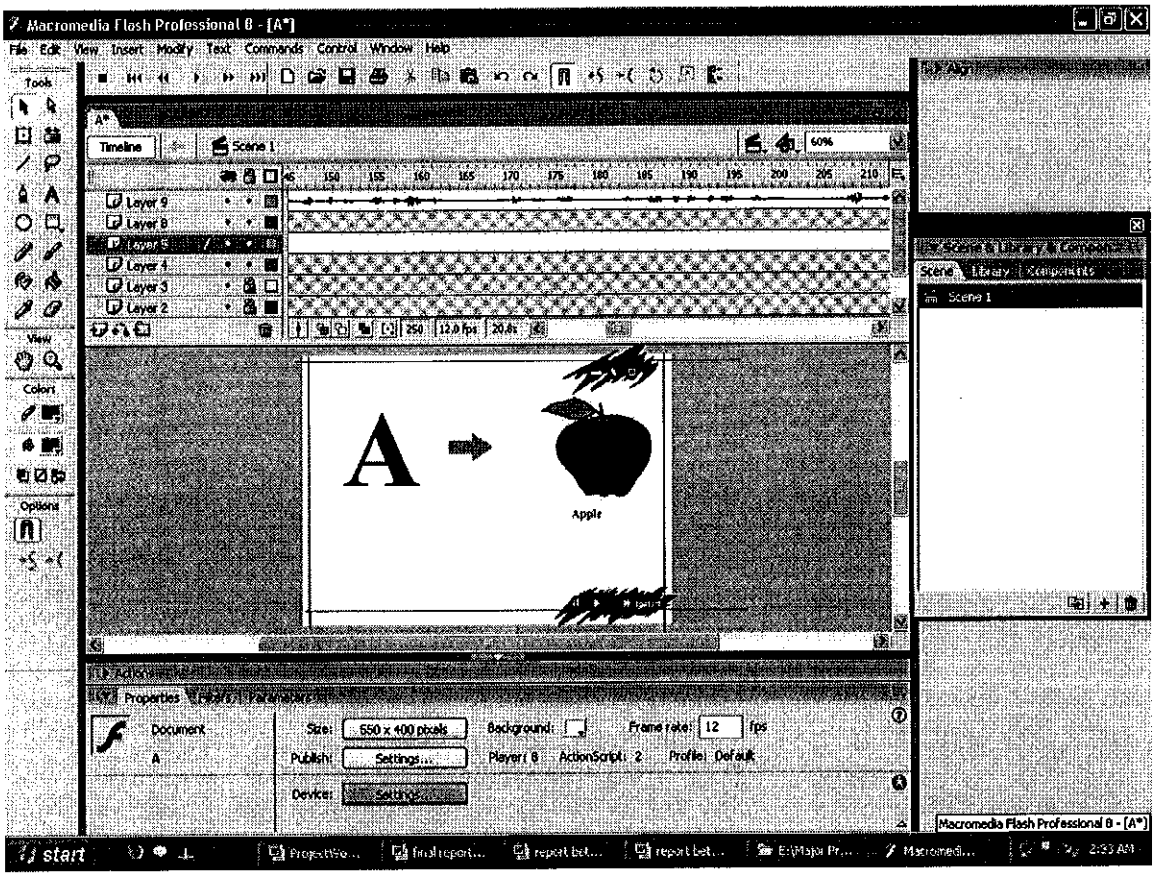

Fig.A-3 capital letter design

The above image is the representation of the internal working of the shockwave file (swf). The file represents the layers and timelines which depict the duration of movie and visibility of the objects in the movie. The library keeps tracks of the symbols and the format of those symbols used in the movie file.

There are two types of the symbols used in this file:

1. Graphic Symbols: these are the symbols on which the effects are applied.
2. Movie Symbols: these are the symbols which act as sub movie inside a main movie.

The layer allows developing the file according to the timeline and duration of the file.

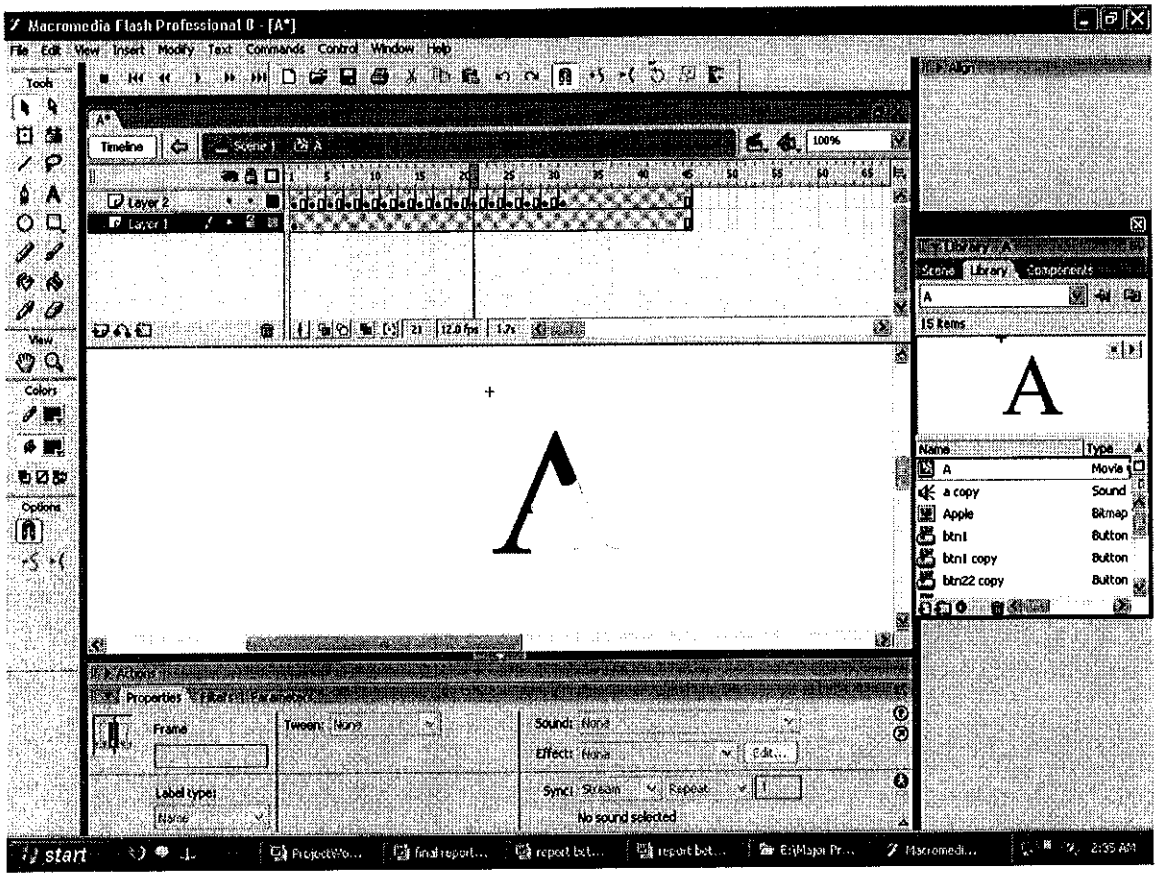

Fig.A-4 Capital letter formation

This is the representation of the Movie Clip symbol that is used to develop any kind of sub-movie within the main movie. This is a development of the alphabet (e.g. A) in the manner the individual is expected to write the alphabets in day to day life.

There are two layers used, layer 1 has a black image and layer 2 has a white image mounted with every key frame the layer 2 image is erased displaying the entire image at the last frame, this gives the user a illusion of the letter being written

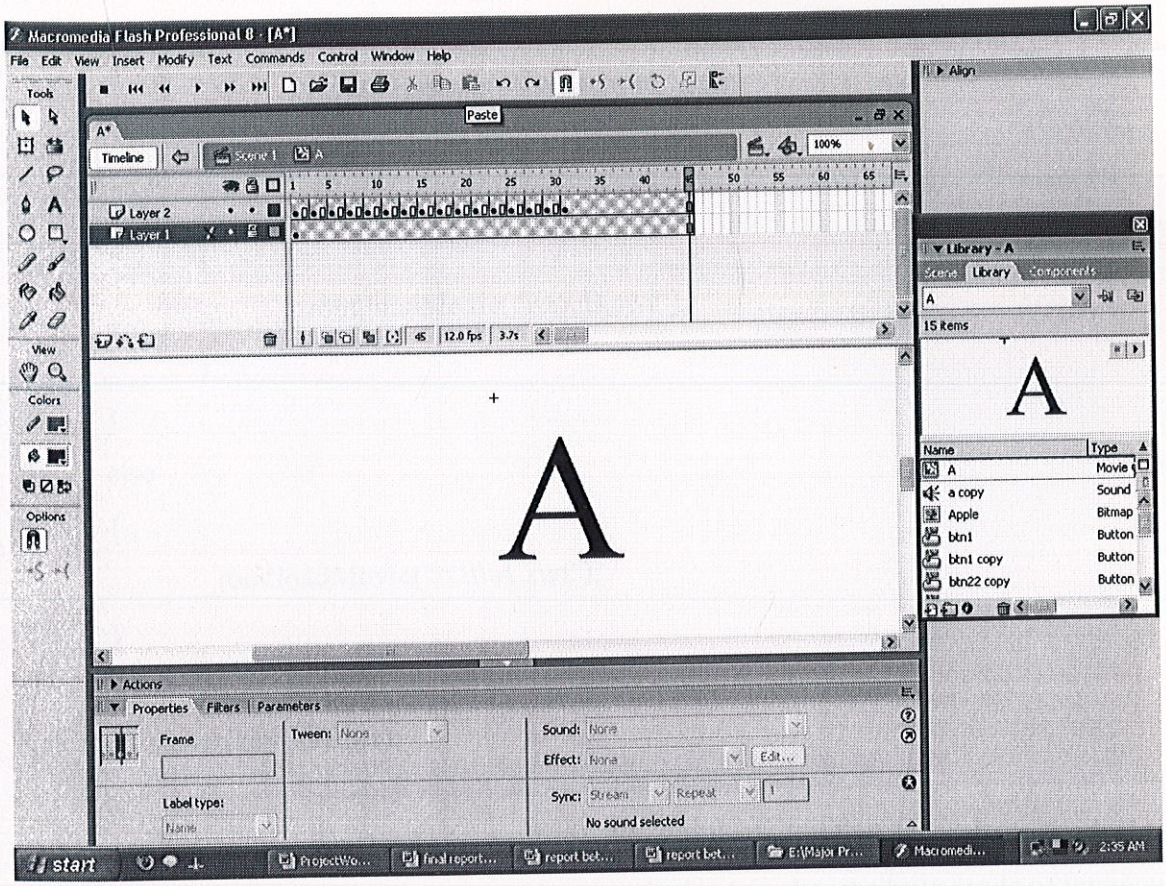

Fig.A-5 Capital letter movie

The above image represents the entire run of the movie clip that is a part of the capital letters movie clip.

A.3.1 Actionscript Code:

```
stop();
var keyListener:Object = new Object();
keyListener.onKeyDown = function()
{
        var abc=chr(Key.getAscii());
  if(abc=="a"  || abc=="A")
        {
                if(_root==Number(_root))
```

```
            {
                loadMovieNum("\\.\\\\B.swf",_root);
            }
        else
            {
                _root.loadMovie("\\.\\\\B.swf");
            }
        }
        else
        {
            _root.loadMovie("\\.\\\\A.swf");
        }
}
Key.addListener(keyListener);
```

The above code represents the basic movie working of the individual i.e. is the individual able to recognize the alphabet he is being taught from the keyboard as the only mode of interaction between the package and the individual is through the keyboard and the mouse.

The action script controls the movie and makes the flash movie interactive. The above action script a object of Key class is generated which calls it member function addListener(), keyListener object which acts a variable is passed into the function, which calls the defined function by the programmer onKeyDown.
onKeyDown function helps the flash file to know the key being pressed by the individual. The variable "abc" stores the ASCII value of the key pressed and compares with a particular ASCII value that recognizes the right alphabet being pressed by the user of the package. If the user presses the right key he moves onto the next alphabet otherwise the same file is pressed from the root of the file.

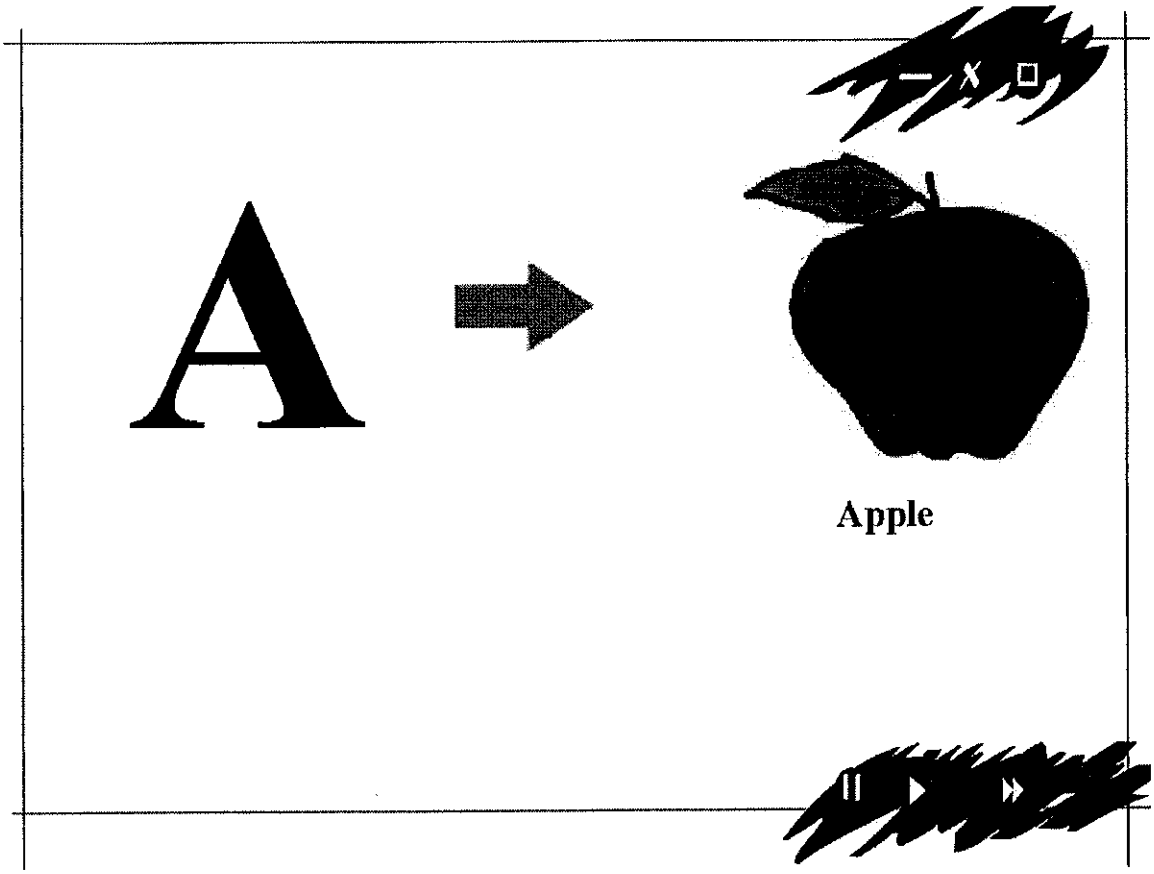

Fig.A-4 Capital letter working

The above image represents the basic working of this module. The image is generic in nature the left side represents the alphabet on the image and the right represents the image that is used to teach the individual in basic education.

A.3.2 Modules built similarly:

1. Capital Letters : English
2. Small Letters : English

A.4 Swar

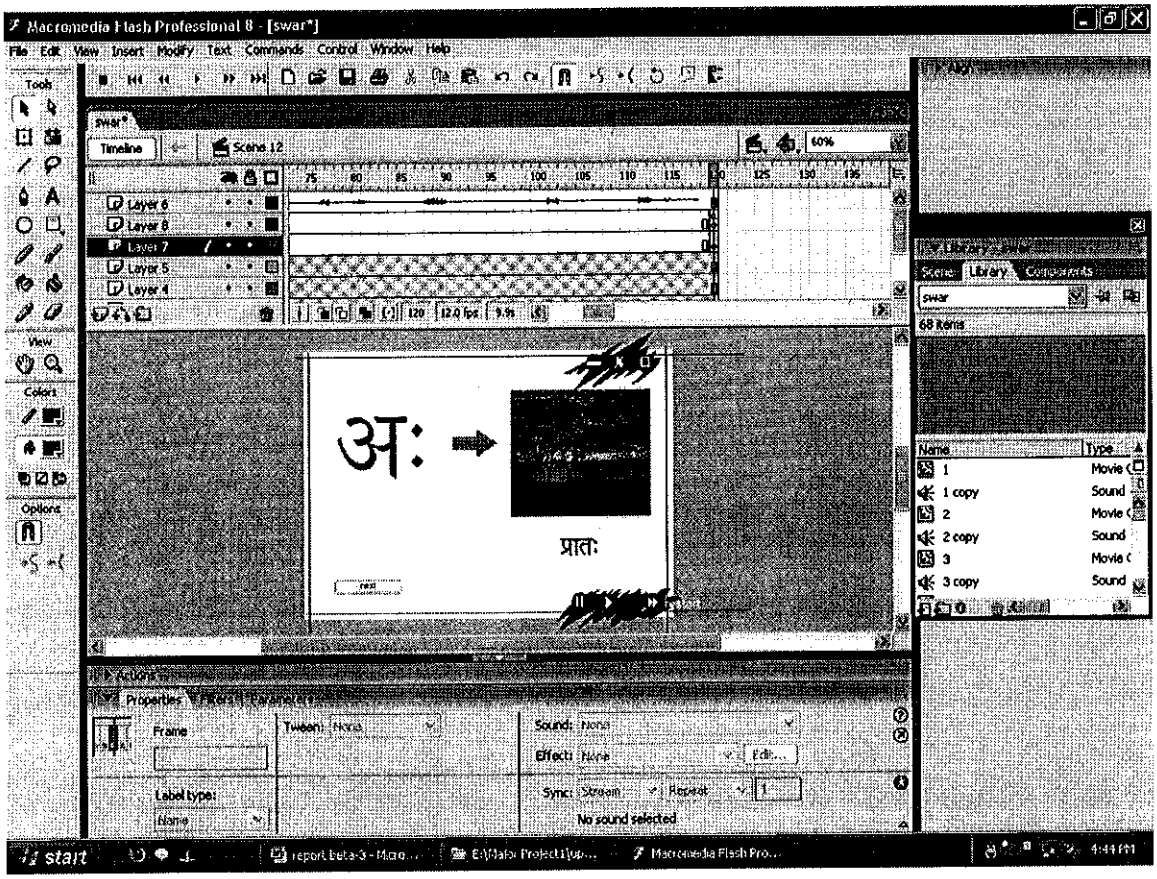

Fig.A-7 Swar design

The above image is the representation of the file used to teach the user basic Hindi language letters known as the varnamala , which is divided into swar, vyangan and sanukth vyangan.

The next button used in this file is used to let the user move to the next letter in the language, as we had a limitation of keys being pressed from the keyboard. This is because Hindi keyboards are rare and the complexity to press the keys using combination is tough.

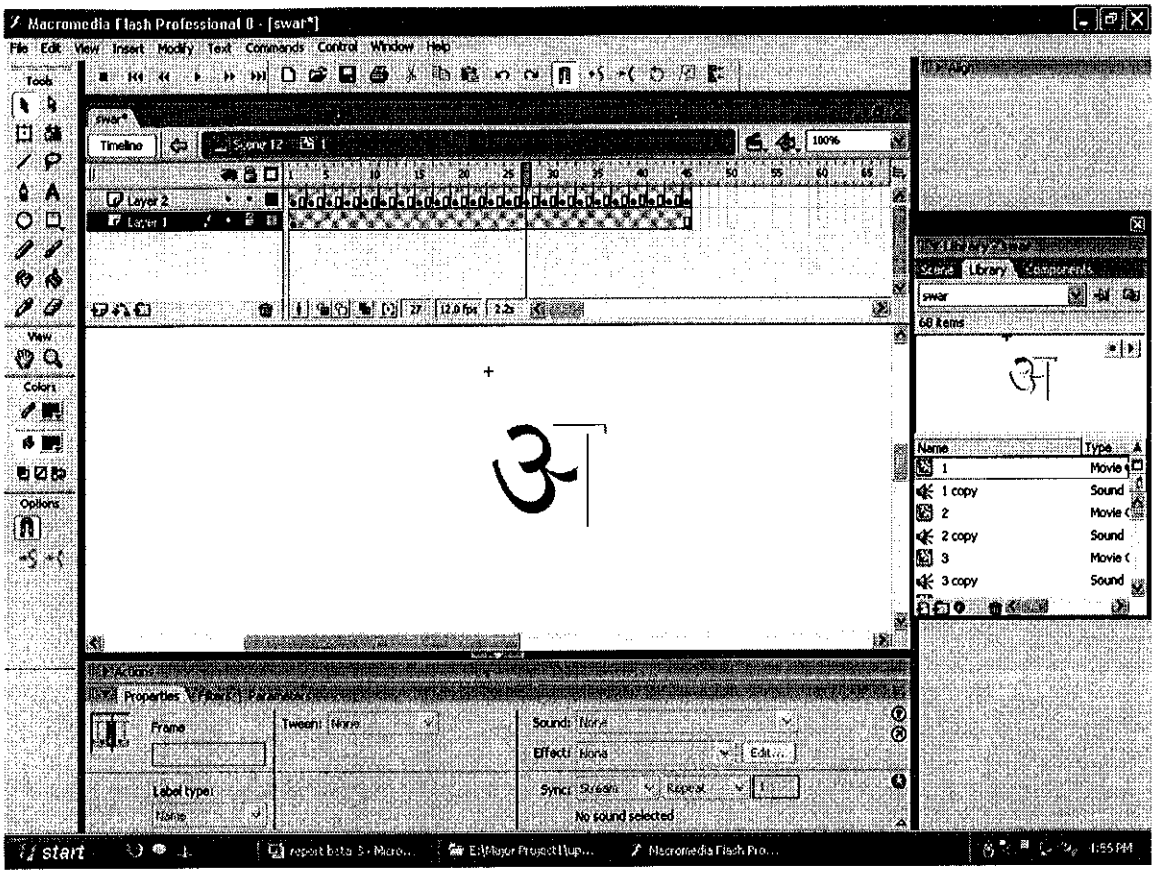

Fig.A-8 Swar formation

The above image is a representation of the small movie that is a part of the main movie of the hindi module which has made for all the letters that are present as a part of the teaching process.

The movies allow the user to understand how to write the letters in daily usage on paper and any other writing form, our aim is to let the user understand the importance of writing the letters more than just to be able to read the letters.

There are two layers used, layer 1 has a black image and layer 2 has a white image mounted with every key frame the layer 2 image is erased displaying the entire image at the last frame, this gives the user a illusion of the letter being written

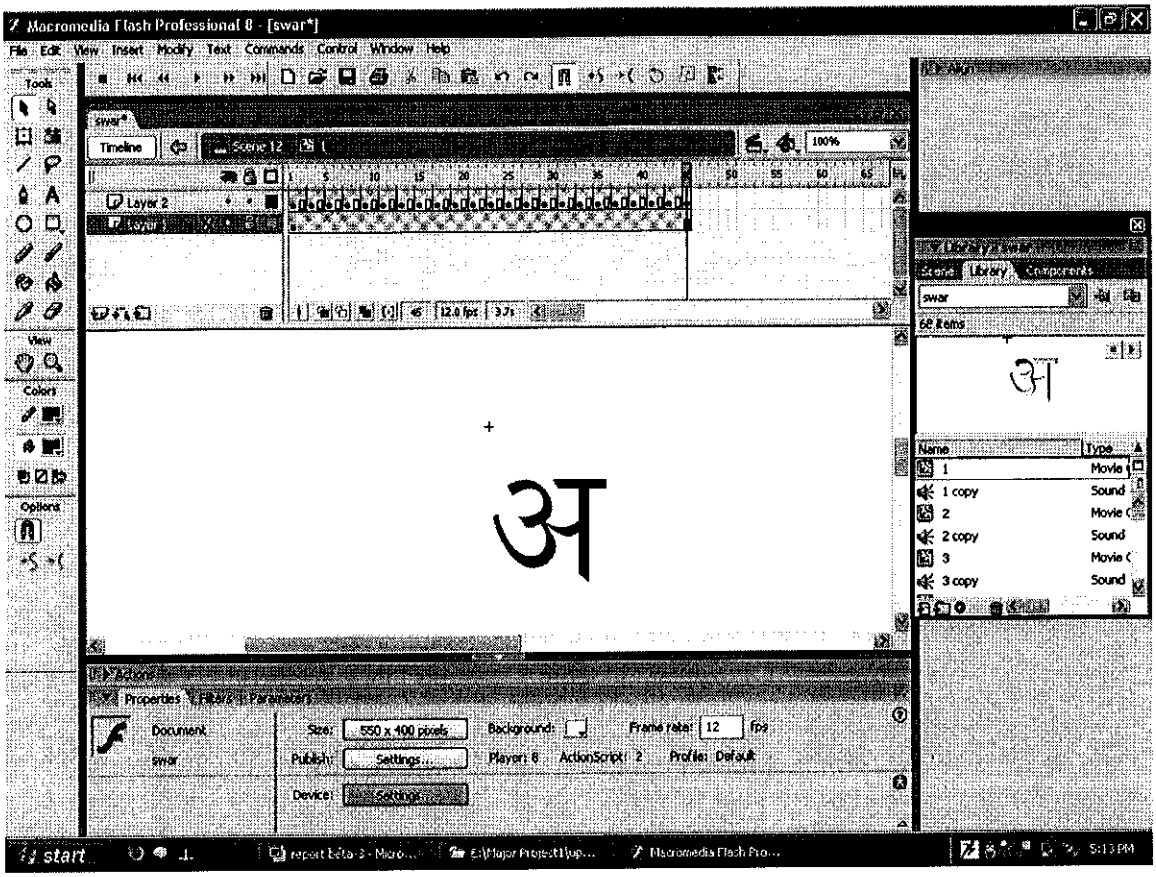

Fig.A-9 Swar movie

This is the complete look of the sub-movie as it goes through the entire process of the timeline; the representation of the letter is carried out in this format.

A.4.1 Actionscript:

```
var buttonListener:Object=new Object();
buttonListener.click= function(eventObject:Object)
{
        nextScene();
}
myButton.addEventListener("click", buttonListener);
stop();
```

The above is the code used in the last frame of the movie that allows the user to click the "NEXT" button to move to the next scene in the movie, this code has a button object create

which calls the predefined function addEventListener, this transfer the control to user defined function which executes the code for the next scene to be played in the movie.

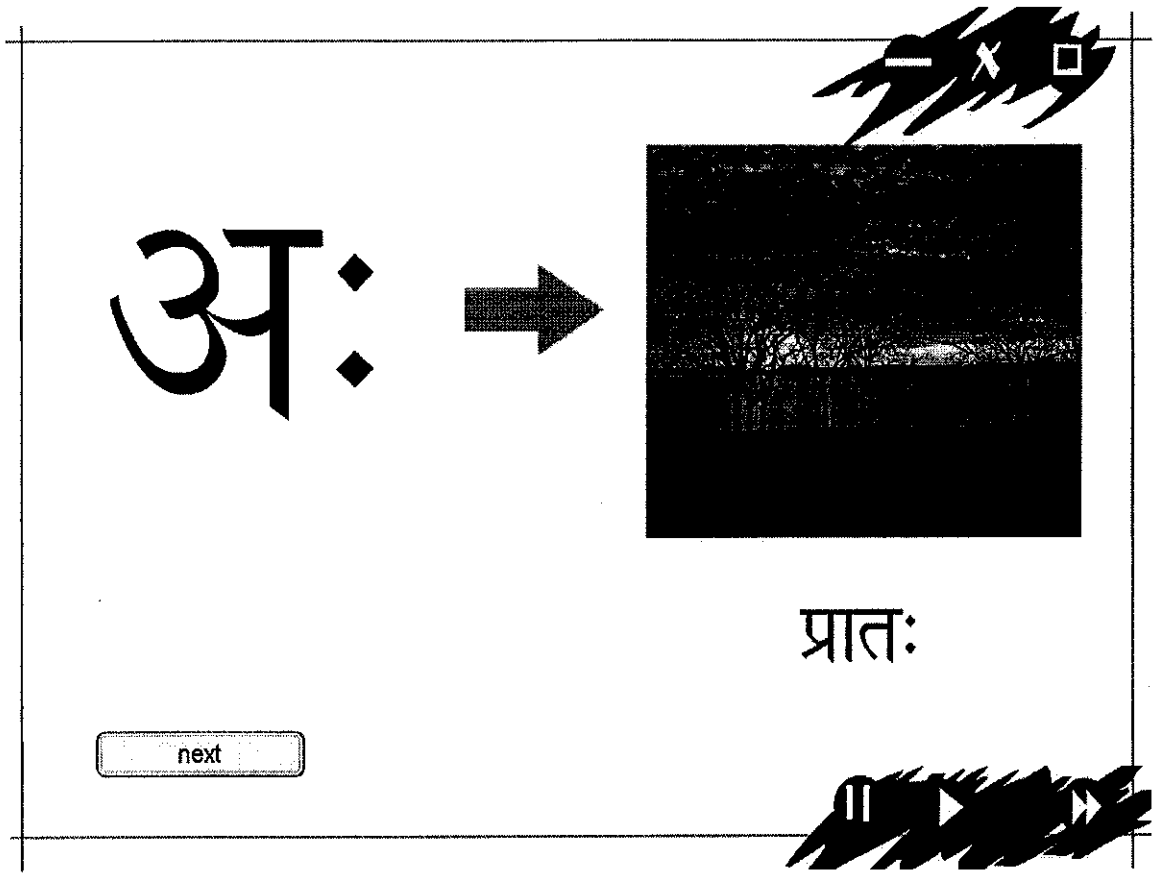

Fig.A-10 Swar working

The image is the final output of the fla file that is exported in the form of a swf. This follows a generic pattern of the alphabet on the left side along with the image on right that can be easily associated with the alphabet, and the "NEXT" button to move to the next scene and another movie if the last scene of that particular movie.

A.4.2 Modules built similarly:

1. Swar : Hindi
2. Vyangan : Hindi

A.5 Capital Letters Pre-test

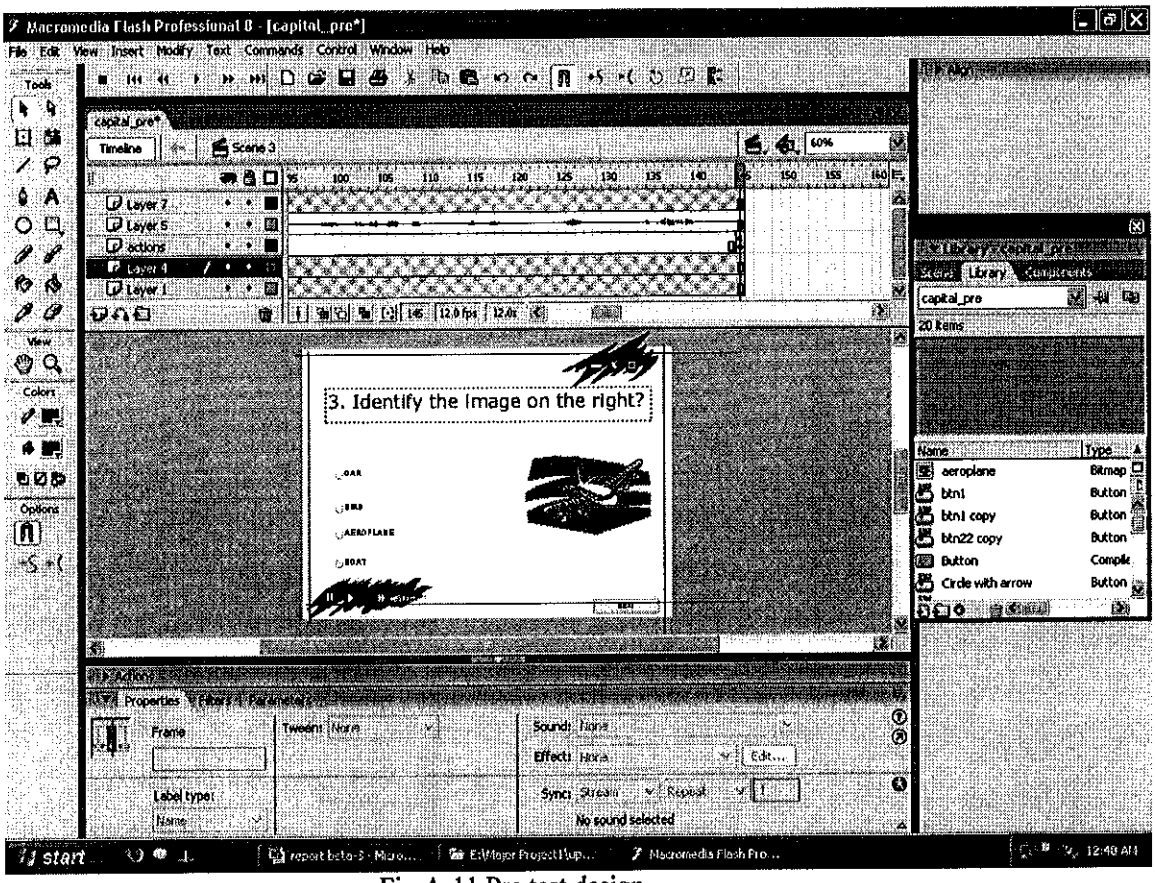

Fig.A-11 Pre test design

The above image is a representation of the test being taken of the user. We use sound, pictures and text to take the test of the user, in this case we use inbuilt components specified in flash. These are radio button and normal button, radio buttons allow to chose the correct answer under a group of radio button and normal button is used to let the user submit the answer.

A.5.1 Actionscript:

```
1. var buttonListener:Object=new Object();
var radioListener:Object= new Object();

radioListener.click= function(eventObject:Object)
{
        var radiolabel:String= eventObject.target.selection.data;
}
```

```
radioGroup.addEventListener("click",radioListener);

buttonListener.click= function(eventObject:Object)
{
        if(radioGroup.selection.data== "AEROPLANE"){
                score=score+3;
                nextScene();
        }
        else {
                nextScene();
        }
}
myButton.addEventListener("click", buttonListener);
stop();
```

The above script listens to the click on the radio button along with the click on the next button. The radio button data field is checked with a specified data, for the correct answer and then the score of the user is increased if the question is answered correctly.

```
2. var total:Number=10;
var p:Number=0;

p= (score/total)*100;
if(p==100){
        if(_root==Number(_root)){
                loadMovieNum("\\.\\\\small_pre.swf",_root);
        }
        else {
                _root.loadMovie("\\.\\\\small_pre.swf");
        }
}
else {
        _root.loadMovie("\\.\\\\A.swf");
}
```

This code checks for the pass percentage required to move to the next test or otherwise move to the topic related to the test. The p variable is used to calculate the percentage of the user in the

test.Here the file is loaded to the root of the movie clip so that the new file is opened in the same window with at the root so the previous file links are not there at all.

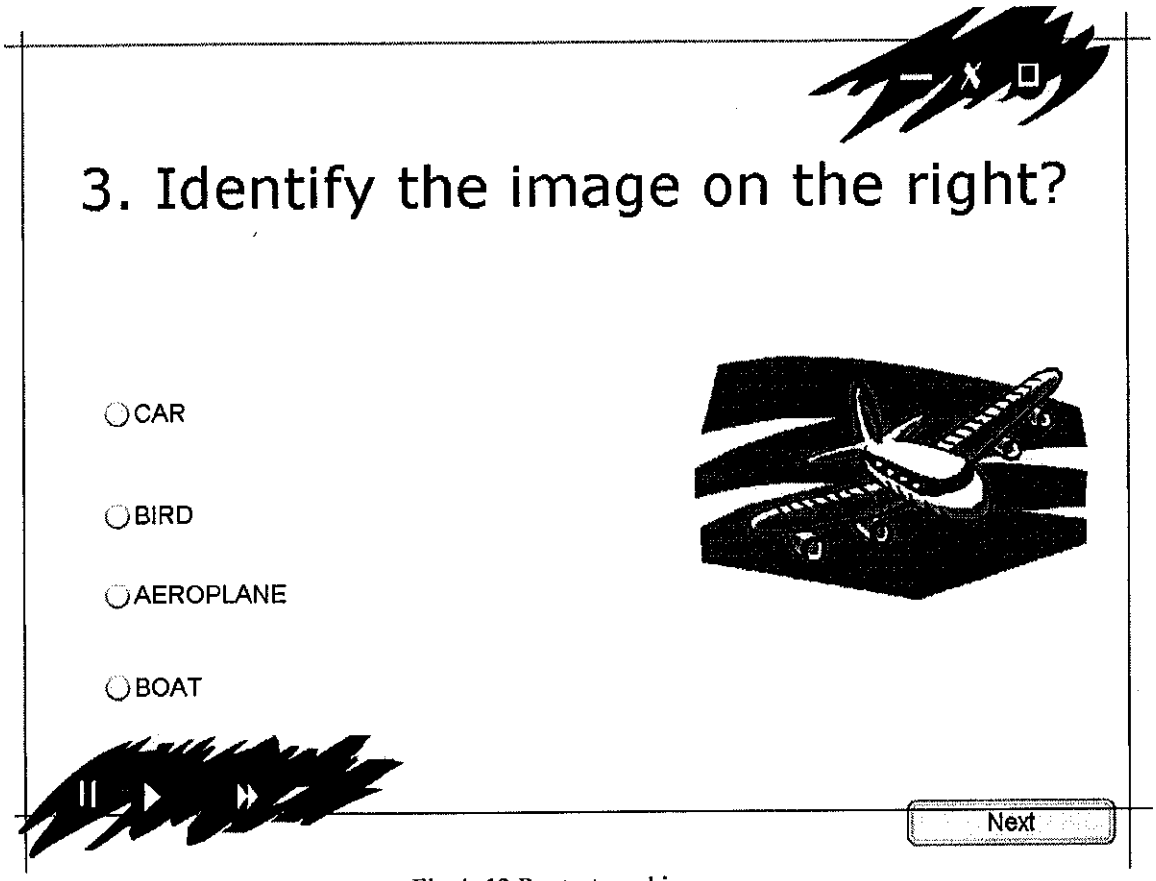

Fig.A-12 Pre test working

The above image is the final output of all the work that has been put in the fla through layers, timeline, components and the actionscripts that have been used to develop the test.

A.5.2 Modules built similarly:

1. Capital Letters Pre-test : English
2. Small Letters Pre-test : English
3. Vowels Pre-test: English
4. Articles Pre-test : English
5. Preposition Pre-test : English
6. Swar-Vyangan Pre-test : Hindi
7. 2 Letter and 3-Letter Pre-test : Hindi

8. Matra Pre-test : Hindi
9. Capital Letters Post-test : English
10. Small Letters Post-test : English
11. Vowels Post-test: English
12. Articles Post-test : English
13. Preposition Post-test : English
14. Swar-Vyangan Post-test : Hindi
15. 2 Letter and 3-Letter Post-test : Hindi
16. Matra Post-test : Hindi

A.6 Game-Based Drill for letters

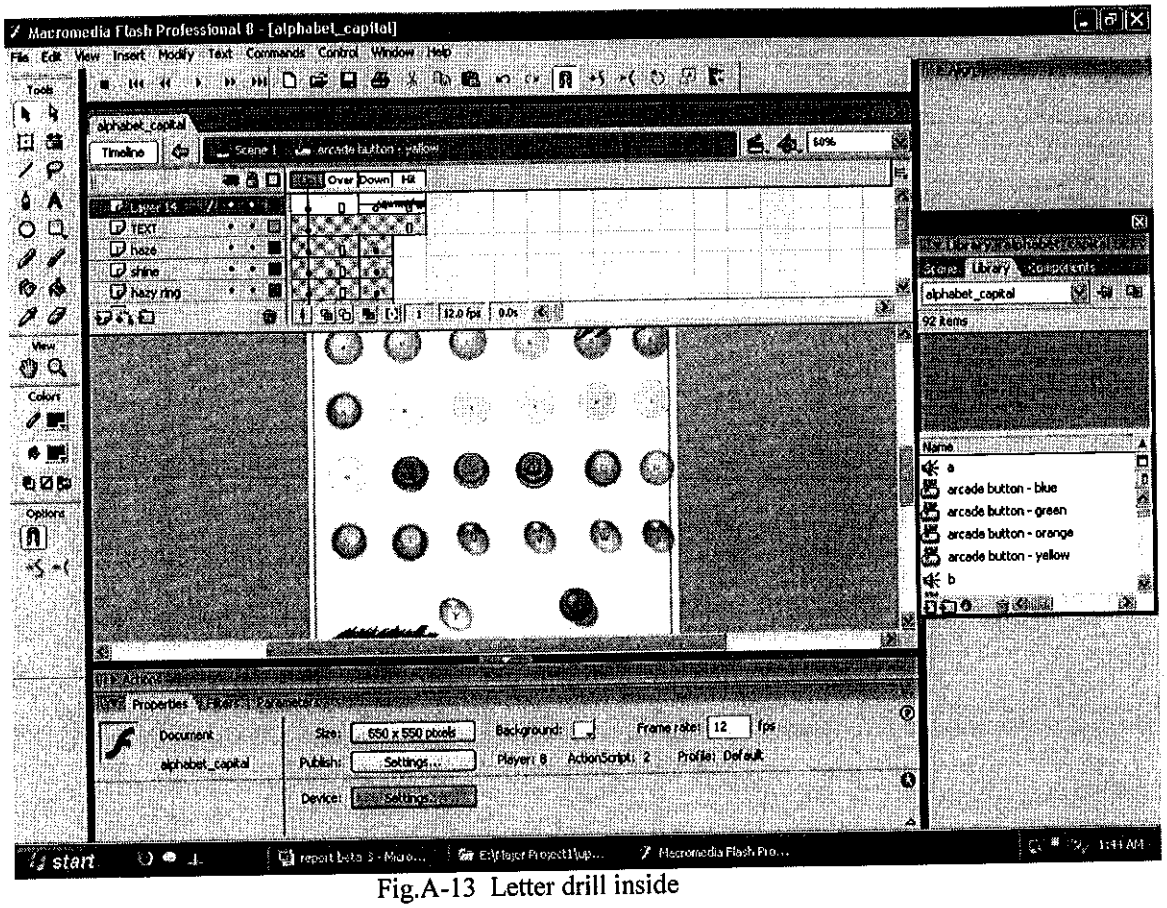

Fig.A-13 Letter drill inside

In the above image the arcade button symbols are used, these button have properties: UP, DOWN, OVER and HIT. These properties can be simply activated by clicking on the then as creating a simple key frame in flash; here a sound file of alphabet P has been embedded on the DOWN property of the button. This means whenever the user clicks on the button sound P is heard.

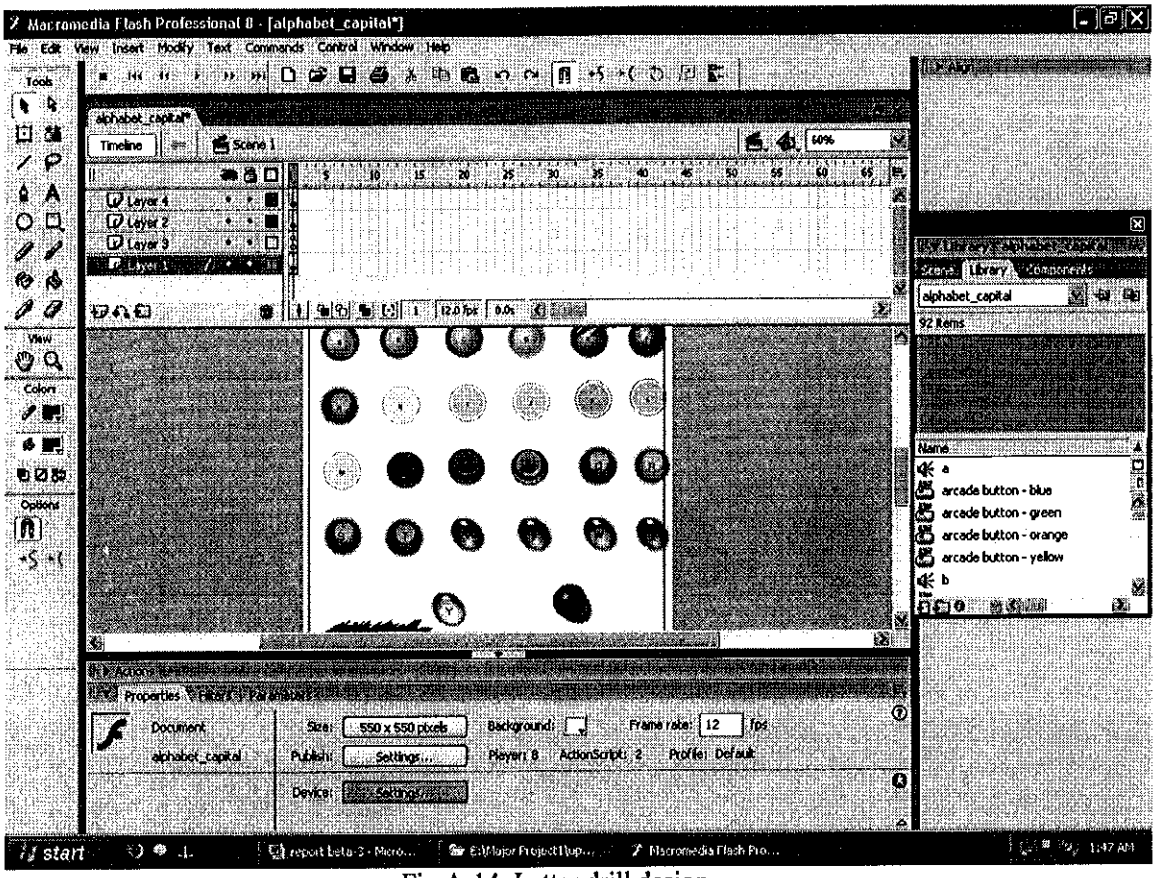

Fig.A-14 Letter drill design

This image replicates the button properties applied to the entire button as in the previous image. This is further extended to the small letters of the series. This allows a quick review of the things taught to the user in the main module.

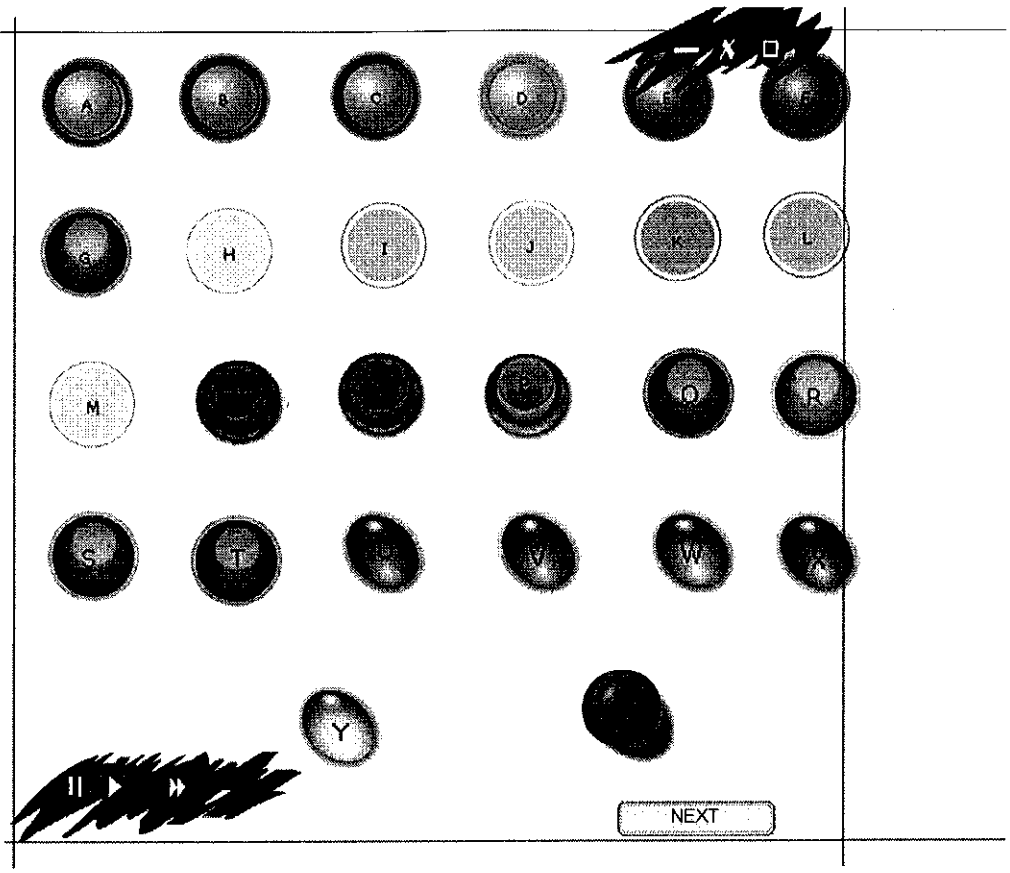

Fig.A-15 Letter drill working

This is the final output of the game based drills which allows the user to click on a particular symbol button and hear the sound of the alphabets.

A.6.1 ***Modules built similarly:***

1. Capital Letters Game-Based Drill
2. Small Letters Game-Based Drill

A.7 Articles

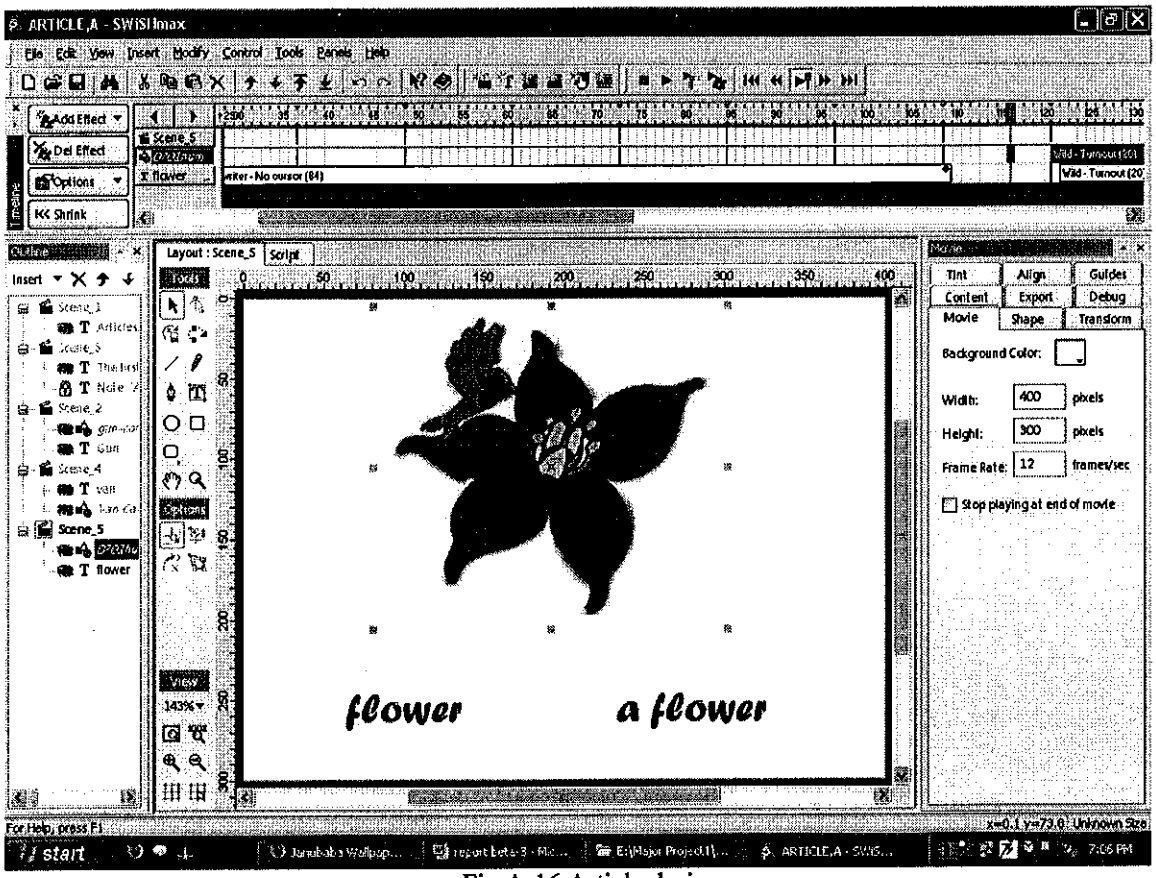

Fig.A-16 Article design

The above image is the representation of the articles module developed in a extension of macromedia called SWISHMAX, this software is a tool developed by SWISHzone.com this allows the application of effects in a simple way, you would see the timeline and layers same as flash, but in this there are name of effects that have been applied on objects in the timeline.

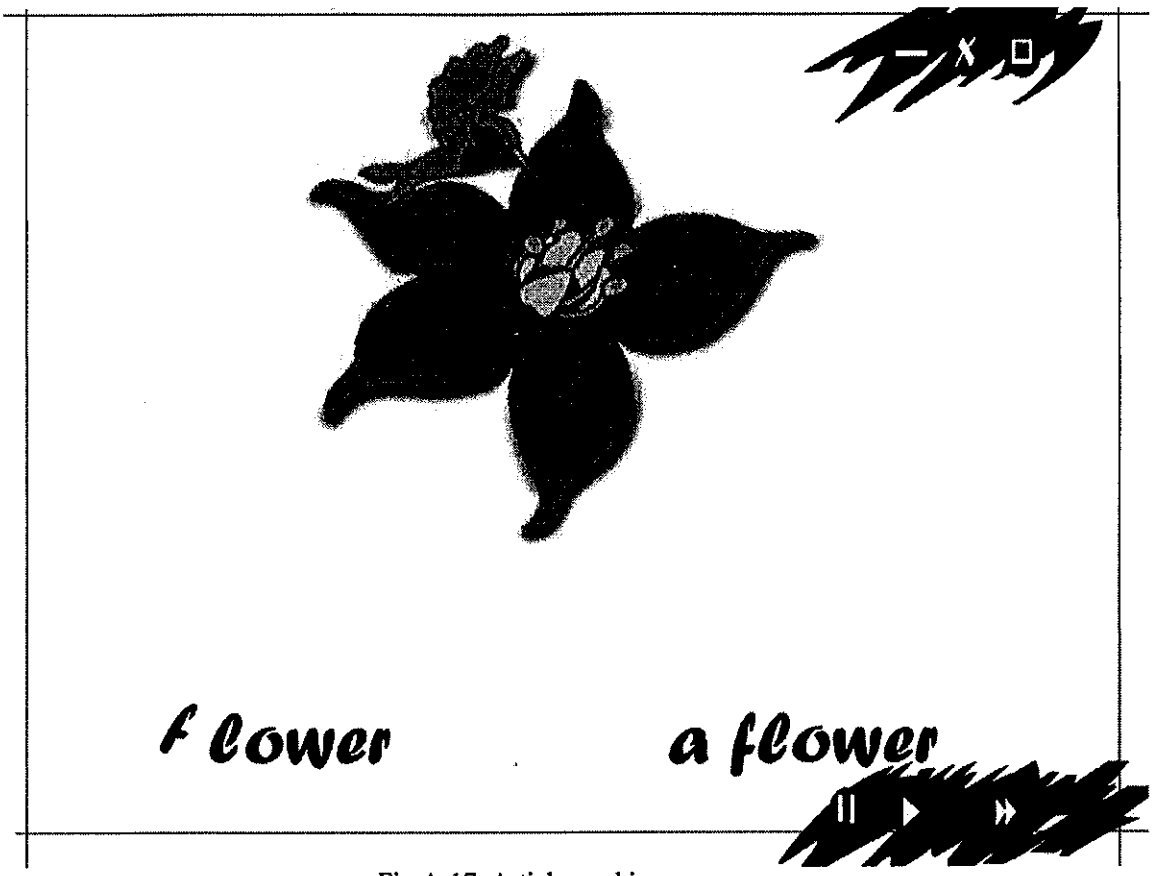

Fig.A-17 Article working

This is the output of the file that was built in SWISHMAX, this file has simple introduction to effects applied on each object in the picture. The same effects can also be developed in flash also.

A.7.1 Modules built similarly:

1. CPU: Computer Learning
2. Keyboard: Computer Learning
3. Mouse: Computer Learning
4. Articles: English
5. Vowels: English
6. Preposition: English
7. Sentence Formation: English
8. Photo Drills: English
9. 2 Letter and 3 Letter words: Hindi
10. Matra: Hindi.

A.8 Keyboard Game:

Fig.A-18 Keyboard game design

The above is the image of the keyboard based drill that is developed to make the user accustom to the new technology as we have assumed that he/she does not know what a computer is. This has a symbol button used to on which a behavior is applied this is applied using the behavior window in the right hand corner of the image. The behaviors applied are to load the sound from library and then play the file on pressing the key.

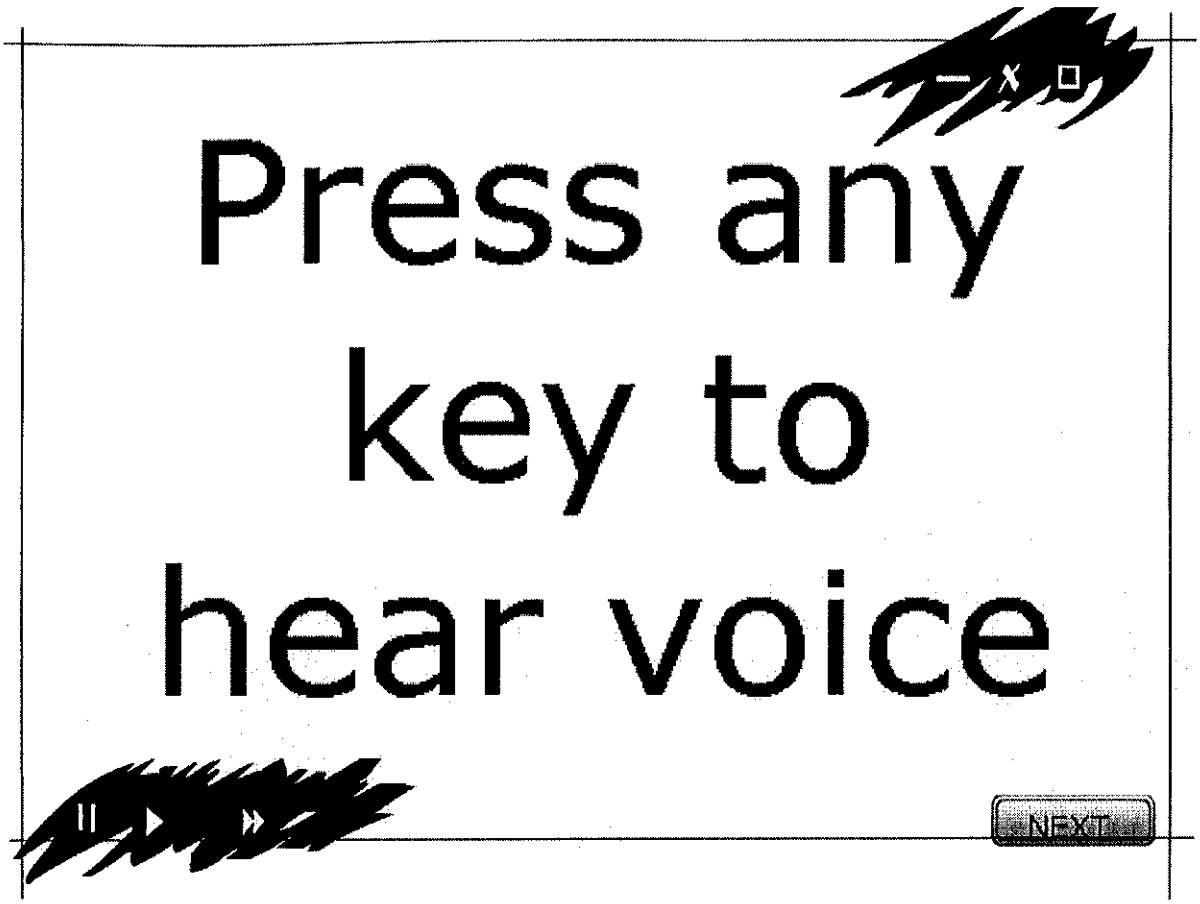

Fig.A-19 Keyboard game working

This is the final working look of the module that has been considered the actionscript applied on the next button here is same as that has been applied in the next button of swar and vyangan in the hindi module to move to the next file. The main output of this image is that it allows the user to have a low-level interaction with the user.