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Effectiveness of Computer Assisted e-Learning Software for Adult Learners

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Abstract: Many attempts have been made to impart literacy to illiterate adults all over the world. The computer assisted e-Learning module developed by the State Resource Centre for Non Formal and Adult Education (SRC), Tamil Nadu in collaboration with Tata Consultancy Services (TCS) was one among them. The present study focusses on the content analysis of e-Learning to gauge the module's effectiveness. The e-Learning module is analysed in two major categories, the audio-visual based and the text based featues. Each and every unit of the e-Learning module was analysed quanitatively and its merits and demerits were found out. This research highlights some merits like the well-integrated graphics and animation, attractive and learner-frienly, voice-over and the easily readable size of the letters. Regarding the demerits there is no effective feed-back mechanism, picture oriented learning and lack of exercises for improving the writing skill of the learners. This study will help us to prepare a new need-based e-Learning module in the literacy field for lifelong learning.

Key words: Adult education, functional literacy, e-Learning, e-Content, ICT, CBL

INTRODUCTION

Computer and e-Learning suit the needs of adult learners better. It facilitates self-paced learning and its flexibility permits learners to choose both the time and pace of learning. Any instructional item can be presented to the learners, any number of times through computers. With regard to drilling and practice, the computer can provide opportunities till mastery is attained by the learners. In the modern world, it is difficult to identify instructors with all the required skills of teaching literacy. With the latest technologies in the scientific world, the computer and ICT minimize the dependency on instructors for making people literate (McNeely, 2005). So, the need for computer based literacy arose everywhere in the field of literacy and education. As computer based learning helps in the retention of literacy skills and is cost effective, the use of computers becomes important in the field of computer literacy (Irvin *et al*., 2007).

ICT is fast emerging as an effective tool to improve the quality of literacy. Already successful experiments have been made to teach using the radio and television. Locally produced interactive radio instruction and community radio can promote exchanges between learners and programme providers much deeper penetration of radio and television has further enhanced their potential as a channel for promoting Literacy (Goverment of India, 2012). Computers as a medium of instruction can be all the more effective for developing the professional skills of literacy educators. Computer technology can be creatively used to choose the digital divide. The NLM has visualized computer based literacy as one of the components in the Functional Literacy Programme which will enable the neo-literate to acquire computer based literacy skills and e-Learning in a variety of ways. It is claimed that once the functional literacy programme is fully operational, e-Learning will be universally accessible and used (Daswani, 2010).

Computer Based Literacy means becoming literate with the help of computer software through ICT. It is an alternative approach to address the problem of illiteracy. Introducing computers in the implementation of literacy programmes, especially in the teaching-learning process is highly advantageous. The computer has several advantages from the point of view of learners, implementing agencies and policy makers. ICT can enhance the quality of education can be a transformational tool and promote a shift to a learner centered environment (Tinio, 2003). It encourages co-operation among the learners and the instructor. Technologies such as videos, television, multimedia and computer software help in seeking the attention and interest of learners towards learning. The use of such technology motivates the learner to listen and to be involved in the lesson being imparted (Sachdev *et al*., 2007).

Thus, the computer caters to the needs of both slow and fast learners. It can build their self confidence and offer satisfaction. It allows a free ambience where there is no fear of shame in the presence of other learners. This is a bonus, especially to time-consuming learners. The computer can deliver information or instruction based

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upon a learner's response. The computer makes it possible to receive information through varied sensory and conceptual modes by the use of colours, shapes, sounds and graphics. Adding more sensory inputs not only enhances the learning but also, attracts and motivates learners, especially the poor rural Indian learners; learning through a talking/teaching gadget like the computer is a thrilling experience. Using the computer for teaching literacy is more advantageous, especially for adult learners.

At the same time using the computer in teaching adults is advantageous to the implementing agencies and administrators also, as they often find it difficult to identify the instructors with all the required skills of teaching literacy. One major problem in any literacy programme is the reversion to illiteracy. The use of a computer provides a solution to this also. Whenever the learner desires to refresh and relearn and the acquire the literacy skill, the computer provides an opportunity to do so without any extra effort from the programme implementators. To accelerate the pace of providing skills to 100 million adult illiterates in the age group of 15-35 in their mother tongue, the Goverment of India set up the NLM (National Literacy Mission) in 1988 to implement the National Policy on Education in 1986. Through Functional Literacy Programmes, the NLM was able to achieve significant success (DEEL, 2002), i.e., to impart literacy implying the achievment of self reliance in reading writing becoming aware of the causes of a learner's deprivation moving towards the amelioration of the learners condition through organization and participation to attain progress to acquire skills to improve the status of their economic and general well being and also to create an awareness in being a responsible citizen (MHRD, 2008).

Today, the technique of e-Learning is massively used in formal education-likewise, the same technique should also be used effectively in Literacy Programmes. In order to meet the demand, a remarkable initiative from the Government of India, the computer based literacy programme is a new-age solution to an age old problem and one that has the potential to lift the national literacy in record time (Mandaleeka and Ali, 2011).

The State Resource Centre (SRC), Ministry of Human Resource Development (MHRD), Government of India in collaboration with Tata Consultancy Services (TCS) has developed a computer based e-Learning adult literacy module. The e-Learning module is commended for providing the finest and most refreshing relearning literacy experience.

The e-Learning module: There are 20 lessons and 7 exercises based on the curriculum and framed according to the relevant norms. Let us see the nature and structure of the presentation of the lesson plans through e-Learning and Computer Based Literacy Programmme. The computer programme is so set that when the Computer Based Literacy learner sits before the computer and clicks its operational switch, the computer screen begins to open, presenting Thiruvalluvar's (famous poet in Tamil language) picture and reciting of the first couplet of the Thirukural (A Bible for the Tamils):

- A leads letters; the Ancient Lord
- Leads and lords the entire world" (Bharatiar, 1999)

It means that the Tamil alphabets begin from God who is the creator of the universe. Then, the drum-beater (the folk art of Rural India) beating his drum informs and invites the illiterates saying ladies and gentleman! come! come! we teach Tamil easily, learn happily.

The first two shots show the logo of the National Literacy Mission (State Resource Centre) and the name of the agency-TCS in the production of the literacy module. The audio track begins from the third shot which shows the first lesson of the Tamil literacy programme. Every lesson is accompanied by a voice over which explains the teaching point (Only after the completion of the voice-over, researchers can move to the next shot). It is possible to hear the sounds of letters/words/sentences given on the screen by clicking them with the mouse any number of times.

The screen setting is like the drama stage. After the opening of the screen, two rectangular black boxes appear, one for the name of the lesson and the other for the lesson's subheading. On the left side of the first black box (the lesson side) there are two small triangular buttons, one faces up and the other faces down to indicate the first and last part of each lesson; the second black box indicates the chapter heading. Near to it, on the right side there are two arrows, one points up and the other points down to reach the next chapter.

On the left side of the second rectangular black box there are up and down arrows for sub-headings, similarly on the right side these arrows are for the for first to last movement. In the right corner, the number of the lesson is indicated on the screen the name of lesson and the teaching word appears as white and when its letters are pronounced and joined with other letters to form a new word, it is represented in yellow easy for the learner for good viewing/listening. When researchers click the hands in the right direction meant for navigation, the letters are indicated in yellow colour with the voice over. If we click again all the letters may be heard in the same voice again

and again. In the left-hand direction, the same lesson is repeated if we click. Further we can see the arrows and button on the right side of the screen.

A back space arrow for deleting the word is given. The green button is to completely erase/delete the word and reset the screen. The red button is for spacing between the previous letters on the screen. The yellow button for typing/making the appearance of other words in the next line. When researchers click the door button given on the left side of the screen, the screen door closes with the saying of Vanakkam and playing the traditional Nadaswaram music. At the start of the programme, the first lesson's name appears on the left side of the triangle. When researchers click, the lesson's name appears. When researchers click the right side rectangle, the lesson gets started.

Need for the study: The e-Learning module supported literacy suits the requirements of adult learners better. The flexibility of the computer and ICT allows learners to decide both the duration and pace of learning. The massive and rapid development of the computer and ICT has brought about a fine makeover in the literacy field. In adult education, the usefulness of computers and ICT is more important. The teaching of Literacy through a computer is easier as it is speedy and stimulates an interest among learners for the accomplishment of their goal. So, the research study as per the trendy development of the computer is considered the most necessary one in the field of computer literacy.

This study gives an opportunity to enhance and rethink the position of e-Learning in the field of literacy. The content analysis is a constructive approach for self-based learning. The technology adopted in this e-Learning literacy module could become a low-cost communication teaching technology. In future, it would shrink the gap in the literacy rate.

Further, it will be helpful in developing post-literacy, continuing education software packages and also in lifelong learning programmes. In turn, the packages will be helpful in building human resources and national development activities.

Aim and objective: The aim of the research is to study the comprehensiveness and effectiveness of the literacy e-Learning module for illiterates. The objectives of the study are:

- To evaluate the computer based literacy e-Learning module
- To cull out the effectiveness of the textual and audio-visual features in the e-Learning module
- To recommend the best practices advocated by the study for the further development and improvement of the e-Learning module

Review of literature: While great strides in education have been made in India, the 2011 census also points out that the 2001-2011 literacy growth (approximately 9.2%) is lower than the growth seen during the previous decade. To accelerate this growth the government of India has started to modernize non-formal and adult education. The various approaches adopted so far in the field of adult literacy programmes have yielded limited results only. If we want to solve the problem of removing illiteracy swiftly, the proper utilization of mass media like the radio, television and computers is essential (Muthumanikam, 2006). Balasaravanan (1996) studied the effectiveness of adult education primers from the view point of the learners it revealed that most of them (62%) are capable of reading a sentence by spelling the letters. A few of them wanted the letter size to be improved and that more pages should be allotted for arithmetic and exercise work. Nearly 24% of the respondents felt that there was no awareness aspect in the primer.

Soundian (1986), investigated the application of the behaviour modification techniques in educating adult learners in post-literacy centres. His study has shown that the behaviour modification techniques motivate the neo-literates to improve their performance in literacy retention. His findings also reveal that there is no significant difference between individual and group taken rewards which implies that motivated neo-literate learners perform better in literacy retention.

Jayagopal (1985), undertook a UGC-media research project on the study of the impact of a multimedia forum on adult learning and attitude in some of the villages in Tamilnadu through the participatory approach. The study revealed that there was a significant relationship between media exposure and adult learning in all the experimental and controlled forum of TV, radio and computers. The Project in Radio Education for Adult Literacy was implemented with the objective of studying the effectiveness of radio lessons among women learners in Adult Education Centres. The instructional package was set in local dialects, vocabulary and cultural specificity. This experience showed that it is feasible to produce radio broadcasts to support adult literacy teaching (Patel, 2002). The Jhabua Development Communication Project (JDCP) provided a better opportunity to use satellite television broadcasting for supporting the ongoing literacy programme in Jhabua District in Madhya Pradesh, India (Ram, 2010). Many nations enhanced their ICT infrastructure to support literacy. A study conducted by

the UNESCO in several developing countries revealed the fact that most learners in developing countries were older and were from low-income households (UNESCO, 2006). Study was conducted in Bangladesh with the aim of eradicating poverty through functional adult literacy using ICT. The learners were provided audio-video aids to attain functional literacy with various vocational skills for the contribution of income generation. The learners were able to read hoardings, road symbols, posters and headings in newspapers (Islam and Manzur, 2008).

As computers came into existence, adult educators saw them as vehicles of information transfer. The computer's vast potential for storage, organization and retrieval of information makes it an even more attractive information transfer device than television or radio (Gnanasekar, 2006). One such programme based on computer and e-Learning was the Computer Akshara Vachakam (CAV). The main objective was to enable learners to learn, the basic functional literacy skills of reading, writing, numeracy and awareness through the computer with minimum assistance from the instructor (Reddy and Nagalakshmi, 2007). A similar type of experiment was conducted in Tamilnadu at the Village Knowledge Centre supported by adult literacy programmes which utilized the relevant ICTs. The project improved the learner's literacy level and quality of life (Sanghi, 2006).

A review of the available literature or research studies is to provided to show the earlier research findings that have a bearing on the focus of this study. A clear picture or the uncovered aspects of the area will offer better insight into the problem to be investigated.

MATERIALS AND METHODS

The Descriptive Research Design was selected due to the nature of the issues, since this study describes the structure, style and effectiveness of the content through this e-Learning module. The content analysis method was selected to analyse the module and its effects. In e-Learning, the main purpose of the content analysis is to evaluate and improve the function of the structured programming. Content analysis is a technique for making inferences by systematically identifying messages.

Its scientific base must have the object, subject, inter-reliability, validity and generality of e-Learning materials (Stemler, 2001), through which the e-Learning content can be got in a quick and systematic manner. Various aspects of e-Learning content can be analysed through the method. The content analysis is framed by the synthetic method of the formation of lessons with letters, words and sentences in this computer based learning material. By viewing and analyzing various research packages, researchers derive many analytical points of the content analysis which remain the base for framing the entire structure of the e-Content analysis and shaping the research study with practical applications of the e-Learning content. The methods of content analysis structuring have been given.

Units of analysis: The content analysis, in this study on the effectiveness of the e-Learning module in the literacy programme for the illiterate people in Tamil Nadu has been carefully framed with the help of various research studies. Harikumar (2003) in his skill based training material has very accurately inducted 12 units for the content analysis. The units selected for study were the page layout, sequence, picture, visual layout, readability, colour choice and size of the book page, continuity, instruction, familiarity of words, font size and text design.

In the next search for studying the content analysis pattern, the State Resource Centre (2001) has included 15 units of the content analysis. They are language, usage of white space, content, exercises, font size, font colour, learning method used, evaluation, paper quality, cover design, size of sentences, size of words, binding quality, size of paragraph and feedback mechanism.

In his research, Mustafa (2002) has used 18 units of content analysis to enrich his study. They are the voice over, music, visual clarity, sound clarity, navigation, feedback, animation, graphics, pace of instruction, rapid screen change, type of interaction, level of interaction, synchronization of the media elements, links, accessibility, colours used, glossary and faqs.

DACE (2005) has enriched its research study with structured units of content analysis. The units were carefully studied to reach the objective of the research which has 20 units. They are audio quality, video quality, level of audience, number of lessons, interactivity, appropriate titles, hardware requirement, software requirement, sequence, navigation, feedback, internet support, loading time, pictures, pre-test and post-test, source of the documents, meaning graphics, correctness of the content, page layout and clarity.

After a careful perusal of the above 4 studies on content analysis with its adoptive methods, researchers deduced the following units to be useful for the research study.

On the basis of their necessity and usage we have enlisted the following conceptual units of the content analysis. They are page layout, sequence, pictures, animation and graphics, visual layout, readibility, colour choices, continuity, instruction, balanced white space, music, voice over, clarity, familiarity of words, navigation,

font size and colour, text design, content, feedback, exercises, learning method used, language, pace of the instruction and evaluation.

RESULTS AND DISCUSSION

The content analysis of the e-Learning module has a clear process of analysing the thematic presence of curriculum methodology for improving the literacy learning. The units clearly depict the analytical way of this e-content analysis. Each and every unit of the content analysis needed in a literacy e-Learning module has been analysed and presented.

Page layout: The ideal page layout should engage the senses and create indelible memories like a good dinner. The best layouts reveal the designer's trust in knowing what is appropriate for the intended audience. They may incorporate an element of surprise, wit and humour to engage the learners' attention (Bierut *et al*., 2006).

The page layout has a brownish red colour background, a welcome screen with purple blue colour, decorated in yellow and the three sides of the border are brown in colour. The lesson number is at the right of a viewable size on top of the page, the key for the readable word is in white with a font size of 72. On the left side there is a lens which helps to search for the correct letters. To attract the learner, flower marks are distributed here and there in light red as found in silk sarees. At the bottom of the page a navigation bar is designed.

Totally, the screen looks like a stage for a puppet show with a purple background. The TCS logo and the lesson's number are seen on the top ends of the stage. A word game and word finder icons are seen below the TCS logo. At the bottom, beginning at the left end we find the exit icon. It serves as a door followed by two black boxes which indicate the lesson's heading currently selected and then followed by the navigation icons. The purpose of creating an interest to learn and draw the attention of the learners for learning is satisfied by showing the learning experience in a puppet show. The size and colour of the letters and icons are clear and visible. The letter to appear in the centre should not be hidden from view. Since, the use of pictures is avoided and the text is more often used, it occupies most of the visible space and clearly satisfies its purpose.

Sequence: The e-Learning Literacy module is arranged in an order. The step by step presentation of the literacy items in the module has been structured in accordance with the objectives of the programme. The sequences are well set for the 27 lessons (on the completion of every 3-4 lessons, an exercise is given to remember the structure of the letters and words)on literacy programmes. The black box at the bottom contains the lessons' heading and it can be moved only by the sequence. As far as the sequence is concerned, there is a condition that letters have to be introduced step by step. There are 45 main letters and after the symbols are introduced, all the 247 Tamil letters can be learnt easily. By that sequence in each lesson 3-4 letters and symbols are introduced. To absorb the sequential practice of letters and their symbols, the letters introduced in the lessons are repeated in the exercises. This kind of sequence lasts up to the end of the last lesson. The sequence is followed by introducing words and letters in an easy to hard method of presentation. All the Tamil letters are introduced step by step in a sequential order and set in 27 lessons so that the learners easily absorb, understand, grasp and keep them in their mind without forgetting. In three lessons as a special practice for memory retention, separate exercises are given.

Pictures: Pictures are presented to support learning and give information which does not require translation and to avoid long explanations. As a helpful source, suitable pictures should be presented along with words to link the letters and words with pictures (Miller, 2002).

At the stage of starting/operating the computer for learning the lessons, the NLM and TCS logos are displayed and the entire learning scenes are set with 3 pictures which are a portrait of Thiruvalluvar, a drum beating scene and a potrait of Vanakkam (Thank you). Here, at the introduction of the lessons there are no pictures indicating letters and words. It will be much better if the lessons are set with the relevant pictures to add a visual effect in the teaching-learning process.

Animation and graphics: Well-designed animations will have a greater appeal for learners. When we click to open the literacy software, the starting scene shows juggled letters and words Tata (waving hands for saying goodbye), Nanayam (coin) and Palli (school). When the screen is clicked the name and icon of NLM and TCS appear on the screen. If it is clicked, the screen rises up to show the puppet stage with Thiruvalluvar's picture on it and it disappears followed by a village drum beater in animation, announcing you are all going to learn Tamil easily. This animation character is like a puppet if a person pulls the string, the characters act accordingly if the person moves the string it is visible. The same animation techniques are used to teach the words and letters throughout the lesson. Special graphics have been used in the word game and in the word finder. In the word game

each letter is hung out with a long rope and if clicked again the vowel symbol set is displayed below it. Researchers can select and form words with the green button to form a new word, a red button to leave a space, a yellow button to move to the next line and a back space icon to erase it. In word finder, all the Tamil letters are displayed and when clicked the corresponding words of the letters are displayed. Similarly while exiting, when researchers click the door icon the door closes and Vanakkam is displayed and it ends.

Visual layout: Visual layout is the representation of pictures on the screen, the size, nature of spacing and themes used (Flaum, 2010). The visuals used in this e-Learning module are only at a lower level. At the beginning, Thirvalluvar's picture and a drum-beater in animation are used with no relationship to the learning process. The theme used with letters is the puppet show theme with the letters in white and for emphasis a yellow colour is used. In the word game and word finder the letters are displayed in wooden blocks against a red background.

Readability: The clarity of language and grammar focused on the topic in the document, provide good readability to the audience. Generally, a slower readability indicates that a less educated audience will be reading the document such as readers who are in the age group of 25-45. At this age, the readability of words is normally slow. As such the letters and words depicted on the screen seem to be bigger, clear and in yellow and white colours which help them to be read easily and understood. As the letters are clear they are easily readable. The learners can understand the words and letters as they are more meaningful and understandable for them. The words have been given great importance in the display.

Colour choices: The colours used in the learning course, lend support at the text level, illustration level and for the background. The use of colours has mainly a functional justification but it determines to a great extent the character and the appearance of materials and prestige of the entire e-learning programme (Istrate, 2009). The choice of colours used in the text is white and yellow which are easily seen by the learner. The top and side edges of the screen are violet in colour. The bottom screen is wooden brown in colour. The central background colour where the words appear is red with a flower pattern.

Continuity: The e-Learning module is prepared in accordance with the norms to impart tamil literacy. It fulfils the aim of imparting all the letters of the tamil language.

To reach the goal, gradually in all the lessons words are introduced. New letters are introduced in each lesson with the designing of new readable words. As a result, the continuity of learning a new Tamil letter can be seen from the first lesson to the last lesson. In order to retain the learned letters exercises were put into practice on the completion of every three lessons. There is a systematic continuity in the structures of lessons and words to reach the goal of learning all the Tamil alphabets.

Instruction: There are many stages in e-Learning. General instruction, written instruction and self instruction are seen. Going through these instructions continuously researchers can reach the target. Under instructions, certain designs like a lens, a radial square, an exit door, two black rectangles and two finger nets which helps to search words are seen. The radial square indicates the word game. The exit door helps in closing the application. In the first rectangular box, the title of each lesson is displayed. In the second rectangular box the title of the new letters learnt in that particular lesson is displayed. In the e-Learning module there are instructional strategies given through various pictorial presentations which are very easy to grasp and understand.

Balanced white space: A balanced white space or empty areas help in giving learners room to rest their eyes or they will not concentrate on whatever is being taught. Throwing too many elements on a page will only confuse and tire out a learner.

The screen in the e-Learning module is structured with 80% of screen space and 20% for letters in all the lessons. New letters are introduced up to 33% and the remaining for new word introductions (i.e., 67%). The space allotted for new sayings-letters is 50% and the remaining 50% is white space. The Sanskritic letters take up 33% and the remaining 67% is white space. Forward games-two line words (25% letters and 75% space are given) totally spatial allotment is given here to utilize the teaching-learning effect of the e-Learning.

Music: The ambient and clear audio supports the e-Learning and remains as a refreshing experience. A good setting of the background audio and music can always do wonders in the learning process. In this e-Learning module, music has been set at a low level. Before the start of the lesson-(Nadaswaram) music which is known to be auspicious is played. After the completion of 27 lessons, the same music is played again to denote the end. The music used in this module is the traditional (Nadaswaram) music when the TCS and NLM logos are displayed, the first couplet of the Thirukural is recited

with a rhythm, traditional (tamil-village style) drum beat music welcomes the learners and the same traditional Nadaswaram music is used when the exit icon is pressed. Lack of musical presentation in a different rhythm is evidently seen in the module.

Voice-over: Choosing the appropriate voice over for the e-Learning project is quite like choosing a talented teacher. e-Learning narration should generally be respectable, calm, confident, deep, effective, easy to follow and understand. A special female voice is used in the module.

The voice has the effect of attraction with clarity and correct pronunciation. The words introduced in the lessons are repeated many times. The male voice used only when the drum beater animation appears and welcomes the learners. Each word of the lesson is uttered thrice clearly with the relevant accent, pronunciation and in a high pitched female voice. All the letters and words given in the exercises are also pronounced effectively.

Clarity: To use and comprehend the contents for good absorption, the visual clarity helps the perceptual aspect (Malamed, 2010). Moderate visual clarity is used in all the lessons. It is so structured that they can easily and quickly absorb the learning content.

Sound clarity can be defined as the degree of accuracy with which a device records or emits the original sound waves. Sound clarity helps for sensorial pleasure and for lessening the fatigue experienced by a listener (Chion, 1994). The pronunciation given by a lady voice is very clear and attractive. The correct pronunciation of the tamil alphabets is clearly given to the learners so that they can easily understand the letters/words sentences. The repetitive pronunciation with clear voice has a good impact over the Learning process of the Tamil language.

Familiarity of words: The words used by the illiterates in their daily routine are known to be familiar. The familiarity of words breeds a good continuity and interest in their understanding and learning. All the Tamil letters are easily taught through 36 sentences of the 20 lessons. After teaching them the 36 sentences, through the daily routine usage of letters, words and sentences, the learners are able to read all the Tamil letters. In the seventh lesson, Sanskritic letters that are used in their daily life are taught. In the twentieth lesson, many known proverbs are used to create interest among the learners to learn. In the e-Learning module most of the words used are familiar (around 60%) and the less used words are given in the last exercise.

Navigation: Navigation controls can be either textual (like hyperlinks) or graphical (like buttons). They must be easy to use and allow their users to see where they just came from where they are now and where they can go next. Throughout the module, the instructor will use only the on-screen controls to navigate. There are two different types of navigation tools. The first tool is the up and down arrows located at the bottom centre next to the black rectangle which helps to navigate between the lessons. The second tool consists of two opposite finger nets in green colour at the bottom right. This tool helps the learner to move from one frame to another.

In this e-Learning module, the navigation process is set in a manner easy to handle. The words for particular lessons are given in small size in a box and when a button is pressed the lessons appear on the screen in a big size. On the left side of the screen, a lens icon is used for searching words, a round icon denotes a word formation game and a door icon closes the screen. Similarly, on the right side of the screen, a push back icon is used to denote a word game, an arrow icon to erase the letters, a green button to form new words, a red button for spacing the words and a yellow button to begin the next sentence. There is no clear explanation given for the navigation symbol.

Font size and colour: All develop a basic understanding of typography, create a course style guide, set the tone of the course and sort fonts by style and emotion (Hoff, 2010). All the words in the introduction have the same font in all the 20 lessons. The font size of the Introductory words is 30. When we teach the individual letters, the font size becomes very big (font size 40) when researchers teach the individual words, the size of the fonts increases (font size 50) and when doing the exercises the font size increases to 70. The saying's/slogan's font size varies to fit the screen like for big sayings/slogans the font size is 40 and for small sayings/slogans it is 20. The increase in the font size when we teach the individual letters and words makes it easy to learn and remembers the letters and words.

Text design: The 27 lessons and exercises are designed in a well directed manner of teaching the alphabets, words and sentences to the learners. On completion of every 3 lessons, an imprint of the exercises which would certainly guide the learners was inserted. The methodology adopted for the e-Learning module was specially designed to teach through words. The texture of the lessons is so designed as to teach two to five new letters in each word of a particular text in the module.

Content: There are 20 lessons and 7 exercises (27 lessons). The lessons are based on the curriculum and framed with the relevant norms. The lessons are graded and given step by step to reach the normative pattern of teaching. It leads us to achive the target of the lessons. On the whole most of the Tamil letters, viz, the alphabets are used in all the 20 lessons. The continuity of learning a new Tamil letter can be seen from the first lesson to the last lesson.

Exercises induce a curiosity to think over again to recollect what has been learnt. They guide the learners to improve their memory and presentation of a suitable answer. At the end of every three lessons, a exercise is given in this e-Learning module. They have letters, words and sentences for easy and quick learning of the subject of literacy. Lesson four, eight, twelve, sixteen, twenty and twenty six have the relevant exercises to practice for the Language Improvement of the e-Learners.

Letters/alphabets play a role in the construction/ structuring of words. Sentences are the vital factors for any language development programme. In the e-Learning process for literacy development also, one can see the above structure of words/sentences presented to serve language development.

Feed back: Feed back is a process of getting back the results from the learners and experts after the entire activity of learning is completed through the e-Learning processes. Each lesson has its own feed on and feed back processes (Brookhart, 2008).

As the learners are new entrants in the field of literacy through e-Learning, oral feed-back is received by the instructors. Researchers can collect the feedback individually or group-wise. If researchers do this in the proper manner we can form frame and structure the module in a well designed pattern. There are no methods for collecting feed-back from the instructors in this literacy e-learning module.

Exercises: Exercises guide one to recollect the letters/words/sentences learnt. In literacy learning, reading, writing and understanding the subject matter, exercises are necessary. In the same manner in language also, many exercises are needed to be given for letters words, sentences and paragraphs for easy and quick learning of literacy. Here, in this module there are no written exercises to assess the capacity of learners.

Totally there are seven exercises. In the first exercise, five words are given for learning and the other six exercises have 15 words each. These exercises help the learners to recollect the letters used. At the end of each lesson, the words and letters used in the lesson are set up to form the exercise. Finally, at the completion of the second lesson, there is one set of exercises to cover it up. The exercises enabled the learners to learn the letters and words introduced step by step and easily. These exercises help the learner to read. But there is no exercise to develop the written skills. This defect should be removed. It is the necessary one for raising the reading and writing skills of learners to achieve and reach the total literacy stage. Exercises should be given in innovative styles and in different types. This type of exercises is not given much here.

Learning method used: There are different methods of adult learning construction. The common ones are alphabetic, picture-associated, phonetic, syllabic, word, key word, kinaesthetic (tracing of words) phase, sentence, story, learners-prepared, etc. They can be classified under the categories of analytic, synthetic and eclectic methods (Saskatchewan Learning, 2004). In this e-Learning literacy module the analytic method is used. This method is based on the assumption that words, phrases and sentences are the meaningful units of thought and not the elements of language i.e., vowels and consonants. They begin with words and sentences. The letters are separated and drilled. New words, phrases and sentences are built with the help of the elements learnt.

Language: There are three types of language forms: spoken, written and dialectical. The Tamil language also has the same three forms. In the language form, written Tamil, common usage in Tamil is used. We impart/teach the common Tamil Language for the locals and other people of the world. In the local dialectical form spoken Tamil is formed to suit the local usage of people only. In the e-Learning process a common language is used. If researchers prepare such computer based literacy materials for the Local people, researchers should also use the common language. There are two stages of Tamil, such as Common Tamil and Literacy Tamil. The common Tamil is used by the commoners. In the e-Learning process, common Tamil is used in all the lessons which helps them to learn the language.

Pace of instruction: The pace of e-Learning is introduced in every lesson so that, the beneficiaries learners understand it easily and clearly. The teaching pace and the learning pace should be consonant with the ability of the learning beneficiaries. In e-Learning, the speed/pace of teaching has to be apt to the need and necessity of the three types of learners, slow, normal and speed

(Middleman and Goldberg, 1998). In this Adult Literacy, the e-Learning Instructional process is done by ourselves. So, we can use it for the speed and efficiency of the learners. After completing the exercises only, we can proceed to another lesson. We can repeat and learn any lesson we want.

Evaluation of e-Learning: Evaluation is done to know the effects and defects of the module. Being a significant part, evaluation should be carefully planned to find out the ease, accessibility and accountability of the information gained to provide good quality (UNDP, 2009). The evaluation should also serve as a record of progress at the learning centres. The test and evaluation should appear as an extension of the lessons and exercises. In the e-Learning literacy module there is no such evaluation pattern to assess the learning system.

CONCLUSION

This study has brought out some useful findings which would help adult educators, policy makers, educational planners and media promoters to arrive at valid lessons in order to adopt some valuable measures in the implementation of adult education programmes using various media including the computer and e-Learning. First and foremost, the e-Learning module and the course contents have made positive impact taking into account the effectiveness of the content, literacy methods of teaching, the impact of the e-Learning, practical exercises given and the audio used. The outcome of the study reveals that there is a scope for improvement.

The lessons and the exercises are set in a sequential order to make teaching and learning an effective process. Researchers stand that all the literacy lessons should have more pictures so that the learners learn the concept of the lessons easily and effectively. It is the defect found in the content. It may be cured with the addition of some pictures. The graphics and animation are well used in all the lessons which are very helpful to the learners to develop the learning skills. The readability and understandability of the word structure (i.e., size of the letter and its coloured representation) is more than enough for an adult learner to learn it well without any difficulties. The white space between the letters and words is good enough for the learners to identify. In the e-Learning module, the background music has been set at a low level. The voice over presentation of lesson teaching and word pronunciation are meticulously planned out and structured in the lessons and are able to motivate the learners to learn easily and quickly. The content is well set, progressing from a simple to complex method of learning. The letters, words formation and structures are gradually equipped with motivational and quick learning proceses. The lack of a feed-back mechanism seems to exist in the e-Learning process. There are no proper evaluation methodologies adopted for evaluating the learners and for finding out the feedback for the improvement of the whole content for learning. There is no innovative exercise for practising writing which could improve the skill of word formation. It is strongly agreed that the e-Learning technique through which the text has been designed was both extraordinary and simple. However, the outcome of the study reveals that there is enormous scope for improvement.

More words related to the development of the learner's life oriented awareness concepts should be introduced in the e-Learning modules to be produced for future use. Pictures are very important in adult education to teach words because they increase the visual effect and make them easily understand the concept. The reading and writing exercises should be given on an equal basis and that should have the gradual structure of letters/words/sentences as this base would increase the reading and writing abilities. To motivate and increase the learner's interest, animation and graphics must be used to teach the letters/words/sentences. The voiceover is very good. Like this, the modules prepared for this purpose in future must have a good voiceover. Small songs and jingles may be included with awareness themes for the adults and for their life development.

If the lessons are taught using LCD projectors rather than a computer screen, the learners especially the aged-ones can learn easily. Computers have been in greater use in all fields in modern days. But in the literacy field their usage has been decreasing. So, to increase the use of computers more funds, production of materials and media for computer-based literacy should be provided by the government. A good many number of workshops/ seminars/conferences can be conducted to enhance the use of computers in the literacy field.

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