



EFFECTIVENESS OF DAISY LEARNING COURSEWARE TO ENHANCE LEARNING OF STUDENTS WITH VISUAL IMPAIRMENT AT TEACHER EDUCATION LEVEL

Education

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INTRODUCTION

Disability conditions can cause educational barriers in student's learning process. It has direct effect on learning, when disability restricts or limits a student's potential to learn. These implications may vary in accordance to nature of disability and its severity. Strategies and educational programs are identified and adapted as per disability implications. Knowing its implications teachers has to take steps while planning instruction to optimize student's learning process and minimize barriers in their learning. The field of special education gave more facilities to the student with visual impairment at elementary to higher education level. Growth of modern technology has made its impact on all walks of life. It has penetrated in all fields and made many changes in all its spheres. Technology has become a symbol of progress. It has developed effective means of communication. Man has made good progress with the help of satellites. The period from ancient to modern has witnessed evolutionary changes in the field of technology related to the visually impaired. The birth of the computer is a blessing to the modern world. The invention of modern equipment saves time and increases production. The computer is a scientific marvel. It is called a mechanical brain. It has speed, accuracy and efficiency. To become successful in today's competitive world one has to confront the challenging future. Managing future involves managing information. Internet provides a vast source of information. It is the window to the world of information. So irrespective of the profession, age, sex and education of a person, he or she has to become internet literate. In particular, assistive technology plays vital role in the teaching learning process of students with special needs. DAISY (Digital Accessible Information System) is the emerging world standard digital talking books for people who are blind or have a print disability. This format has been under development for over ten years, with most of the world's talking book libraries now employing some form of the standard. Work to improve and promote the adoption of the format is directed by the DAISY Consortium. The DAISY Consortium was founded to find a common solution in the creation of a new digital talking book system, the DAISY Format. While DAISY is famous for development of the Digital Audio-based Information System many people do not yet know that the specifications are comprehensive and include E-text and Braille in the production techniques. This is high quality Braille can be produced using data prepared for the National Institute Open Schooling (NIOS) DT Book 3.0 XML specification currently under development. DAISY now works with mainstream e-book formats; support training around the world. Daisy talking books are accessible books for people who are blind and partially sighted or have other reading disabilities, taking the books that are in print and putting them in a format that can read back to the person, or it can be read from a screen, with large print and the colours of someone's choice they're designed with people with reading impairments in mind. You can move around the book easily, from the table of contents, directly to a chapter. You might spot a footnote and be able to read that and come again. Images are described.

DAISY (the Digital Accessible Information System) is a technical standard for digital audio books, periodicals, and computerized text. DAISY is designed to be a complete audio substitute for print material and is specifically for use by people with "print disabilities", including blindness, impaired vision, and dyslexia. Based on the MP3 and XML formats, the DAISY format has advanced features in addition to those

of a traditional audio book. Users can search; place bookmarks, precisely navigation line by line, and regulate the speaking speed without distortion. DAISY also provides aurally accessible tables, references, and additional information. As a result, DAISY allows visually impaired listeners to navigate something as complex as an encyclopedia or textbook, otherwise impossible using conventional audio recordings. DAISY multimedia can be a book, magazine, newspaper, journal, computerized text, or a synchronized presentation of text and audio. It provides up to six embedded "navigation levels" for content, including embedded objects such as images, graphics, and MathML. In the DAISY standard, navigation is enabled within a sequential and hierarchical structure consisting of (marked-up) text synchronized with audio.

There are three types of DAISY books. One is audio-only DAISY, which is the most common. This format provides minimal text content and a set of recordings that the reader hears when the book is played. Audio only is commonly used for recreational reading employing live human narration.

Text-only DAISY books have no audio recording but provide the text of the book itself. These books are read with either text-to-speech systems or Braille displays. Bookshare.org produces text-only DAISY books. Their chief advantage is their very small file size as compared to books with audio files. The disadvantage is that these books require a text-to-speech system in the playback device, which means they cannot be played using the NLS player and that users must be willing and able to read tactilely or tolerate less than human-sounding speech.

DIGITAL TALKING BOOK AND DAISY STANDARDS

The Digital Talking Book is an audio representation of a print publication which is planned to further enable people with print impairments. A DTB is intended to provide enhanced access to documents above and beyond the standard audio book. DTBs have all the benefits of regular audio books, but they are superior when it totals up to navigating the content and displaying synchronized text. Whereas analog audio books must be manually manipulated to find specific sections, DTBs provide enhanced multimedia access to the content for people who are blind or otherwise vision impaired, giving them quick access to particular parts of the Script. Most of DTB's using DAISY format audio books. DAISY stands for Digital Accessible

Information System. The DAISY Consortium was formed by talking book libraries to lead the worldwide transition from analog to Digital Talking Books. The DAISY Standard allows for full flexibility in the mixing of text and audio ranging from audio-only, to full text and audio, to text-only. DTB's are played backward on either hardware or software players. They are many hardware players available for a high cost. Victor Reader Classic X, Book Courier, Icon, Telex Professor are some of them. When it comes to software players, they are usable in several platforms. Such as Windows, Mac, Mobile platforms.

DAISY talking books can be helpful for students of all ages:

- DAISY provides an enriched multimedia reading experience that is completely accessible and navigable
- DAISY offers text and audio synchronization

- DAISY audio recordings can be made by professional or volunteer narrators, or can be generated as synthetic speech
- DAISY can support Braille output
- DAISY provides adjustable character display
- DAISY meets both simple and advanced reading needs
- DAISY is for EVERYONE who needs accessible information and for EVERYONE who loves to READ

DAISY multimedia

A talking book or computerized text, also a synchronized presentation of text and audio produced according to DAISY Standards. While reading a DAISY book, a reader can go to the next or previous page, chapter or sentence. These books can be distributed on a CD/DVD, memory card or through the Internet

FEATURES OF DAISY

- Move through text one character, word, line, sentence, paragraph, or page at the time
- Read the book from beginning to end without navigating
- Move back and forth by time segments specified by the user
- Jump to specific chapters, sections, headings, and other segments
- Fast forward and reverse through the book (increase audio speed, indicate elements) Reading at variable speeds (while maintaining constant pitch)
- Navigational presentation of structure and content in table of contents and Navigation Control File (NCX) (includes cover, comments, materials, lists of footnotes/figures/other objects)
- Adjustable NCX (level of granularity (collapse/expand), circularity (top-bottom-top)) Move between NCX and actual book, choose where to jump (beginning or to certain point)
- Navigational indexes by hypertext linking
- Flexible (audio) presentation of notes and note-references, return-point in text immediately following
- Cross-reference access by hypertext links (audio signal when cross-reference is encountered), return to point in text immediately following the reference
- Possible to determine whether a cross-reference link is to external or internal target Possible to retrace cross-reference paths
- Large sets of bookmarks possible to insert and browse
- Bookmarks stored in a separate, synchronized file and exportable to other compatible devices
- Tagging bookmarks by searchable text or voice labels, equal labels compose bookmark sets
- Automatic placement of unlabeled bookmark at point when stopping playback Highlighting elements (section, phrase etc.) and assigning labels and label sets (text or voice)
- Highlighting stored in separate file
- Highlighted elements indicated in book where read
- Browse and jump to highlighted elements
- Excerpt capability (copy and paste elsewhere)
- Search for text strings, structures and tags
- Spell-out capability for words Auditive indications of text attributes (bold etc.) and punctuation (space, exclamation mark etc.)
- Adjustable reading of tables (one row/one column at a time, locating cells etc.)
- Nested list presentations (including determine levels)
- Skipping user-selected text elements ("skip ability")
- Tagging of text elements, or informing of layout and structure of text elements Information on logical, physical and temporal aspects of location in book (auditive and visual)
- Summary (title, author, playing time, number of parts/chapters/pages etc.) and reporting (if within a chapter, how many sections, number of pages etc. in this chapter) - (auditive for visually impaired)
- Try to present scientific and mathematical informations, organizational and flow charts, trees etc.
- Visual formatting of textual content through CSS and XLS (and Audio CSS)
- User control of presentation styles, selecting and modifying styles (layout, view, text font/size and colors of background, foreground, text, highlighting, controllers and other elements)
- Content rendering defaults

COURSEWARE

Courseware is a term that combines the words "course" with "software". Its meaning originally was used to describe additional educational material intended as kits for teachers or trainers or as

tutorials for students, usually packaged for use with a computer. The term's meaning and usage has expanded and can refer to the entire course and any additional material when used in reference to an online or "computer formatted" classroom.

Courseware includes educational materials that serve as aids for teachers or trainers and even as self-learning tutorials for students, usually packaged for use with a personal computer. Courseware includes any knowledge area, in which information technology subjects are the most common ones. Courseware is frequently used for delivering education about the personal computer and is commonly used in business applications, such as word processing and spreadsheet programs.

Courseware can include any of the following: Materials for traditional teaching classes, Materials for self-directed computer-based training (CBT), Websites that offer interactive and creative tutorials, material that is connected with distance learning programs, such as live classes conducted over the Internet, Content videos for use individually or as part of classes.

USAGES OF DAISY COURSEWARE

- Bundle File: A lot of metadata portraying the DTB
- Printed content record: Contains the content of the report in XML
- Sound Files: human or manufactured discourse MP3 accounts
- Picture records: for visual presentations
- Synchronization records: synchronizes the various media documents of the DTB during playback
- Route control record: for survey the archive's various leveled structure
- Bookmark/Highlight record: backing to client set features
- Asset document: for playback the board
- Appropriation Information File: maps each SMIL document to a particular media unit

Objectives of the Study

1. To find out the effectiveness of DAISY learning courseware to enhance learning process of students with visual impairment at teacher education level

Hypothesis of the Study

1. DAISY learning courseware is effective to enhance learning process of students with visual impairment at teacher education level

Methodology

Case study method was used in the present study. The researcher considers this to be an intrinsic case study. According to Bromley (1990), a case study is "an organized inquisition of an event or a set of related events which intends to describe and explain the phenomenon of interest." This study focuses on examining the challenges faced by prospective teachers with visual impairment who are pursuing their teacher training in special education. There were three students from whom data was collected through interview and case study analysis. The research used a convenient sampling method, as data was collected from students in the nearby college. The locale of the sample was Karaikudi, in Sivaganga district.

Results and Discussions

The following are the interview questions asked to the students;

1. Are you interested in reading through audio books?

All the students said they were interested in studying by using audio books. They said, "Yes yes I am interested to learn this way. But they need training in operating the audio books." The result evinced the need for training in using audio books with advanced technologies.

2. Do you get confused and hesitant to use new technology tools?

All the students said they were reluctant to use new technology. "Knowledgeable technology is easy to use but initially we were hesitant to use this." (S-3). They said any technology is difficult to use initially but with practice, it becomes easier.

3. Have you used Daisy book before?

All students said they were new to these DAISY book based learning tools. As Daisy was a new concept to them, one student said that he could use YouTube tutorials to know about the daisy format (S-1).

4. Have you read any other electronic devices like the Daisy book?

They said they have used other electronic devices similar to the Daisy

book. "PLEX TALK, HV PRO, ANGEL PRO are some of the electronic devices which they had read."(S-2). But the above devices they had to record the learning materials and use it for learning. But the Daisy book is different as the learning materials will be presented to them and they just learn by listening it.

5. Do you find it easier to handle daisy technology?

All the students said it was easy. One student felt it was difficult to handle the Daisy technology initially but it became easier to handle after using it for several times."(S-2)

6. Are you interested in reading Daisy books?

All students are interested to use Daisy book. The daisy material given to them really created interest in them to go through the materials with clarity.

7. Is it Easy to understand pronunciations in Daisy technology?

"By listening to other tools like Plex talk, phone recording Daisy Technology was also easy for them to read and understand the pronunciations. S-1)

8. Do you understand the meanings in the Daisy book when you listen to it?

All the students said it was easy to understand when they read Daisy book.

9. Do you find it easy to locate the page you want to read in Daisy book?

All the students said they could easily read the Daisy book. "It's easy for me to find and read the necessary information"(S-2)

10. Do you feel distracted when listening to Daisy book?

Distraction is there but we can reduce distraction when studying in a separate room. "There is no distraction when listening to Daisy book. But if you hear any noise outside, you can stop it for a while and later continue to listen it."(S-1)

11. Is the sound clear in Daisy book?

All students said that the sound is clear.

12. Can you read Daisy book any time?

All students said that they could read Daisy book at any time at their own pace and it depends on their interest. (S-2)

13. Can you read Daisy book without anyone else's help?

All the students said they could read Daisy book without anyone's help. One student said, "When I don't understand what's in Daisy book, I need someone else's help. (S-3)

14. Do you think using Daisy book can make you score higher in exams?

All the students said they could use Daisy book to get more marks in exams. "When reading Daisy book, I am able to self-study for exams without anyone's help. This helps me score good marks."(S-1)

15. Do you think the use of the Daisy book makes more sense than the other books?

All the students said that the use of the Daisy book makes more sense. "Daisy book is more useful to me than other books like large print and braille."(S-2)

16. Do you think Daisy book is in the form of easy exchange with others?

All the students said they could easily share the book. "Daisy book is easily transferable so that those who need it can use this book." (S-3)
17. Is it easy to understand the details about the image in Daisy book? All the students said that the illustrations in the Daisy Book (Picture) are easy to understand. "I can feel like my teacher is describing the pictures in the Daisy book."(S-1)

18. Are you able to understand the tables in Daisy book?

All the students said the tables in the Daisy Book (Table column) are easy to understand. "It's easy for me to understand the tables."(S-3)

19. Do you find it easy to learn clear word pronunciation by learning using daisy technology?

All the students said that the word spelling in Daisy book is easy to

learn. "You can learn the word with pronunciation. It is possible only by asking them repeatedly that we can detect the clear pronunciation" (S-1).

20. Do you have any difficulty in understanding the chapters in Daisy book?

It is simple for all students to understand the chapters in Daisy Book. "The chapters in the Daisy Book can be easily selected and read."(S-2)

21. Do you have any trouble in understanding the voices in Daisy book?

All the students said it was easy to understand the voices in the Daisy Book. "It's easy to understand by repeatedly listening to the voices in Daisy book." (S-1)

22. Is it easy to change voices in Daisy book?

All students said they could easily change the voices in the Daisy Book. "I can easily change the voices" (S-2)

23. Are you able to do Color/Contrast Change in Daisy Book?

All the students said that the color contrast in the daisy book can be easily changed. "I can easily change color contrast in daisy book."(S-3)

24. Is it possible to increase the size of the letters in the daisy book?

All the students said they could enlarge the size in the daisy book. "Yes we can easily increase the size of the text in this book."(S-2)

25. Is it possible to underline the words in Daisy book?

All the students said they could outline the words in the Daisy book. "Words can be easily underlined."(S-3)

26. Is the Daisy book easy to search for pages and titles?

All the students said it was easy to find and read the required pages and topics in the Daisy book. "Easy in searching the required page and content" (S-1)

27. Do you find it easy to read Daisy book from beginning to end?

All the students said it was easy to read Daisy book from beginning to end. "We can read Daisy book from beginning to end without any difficulty" (S-2)

28. Is bookmarking easier to read when using a daisy book?

All the students said it was much easier to mark the book mark when using the Daisy book. "Book markings are easy to read and the most important of them are easy to pick at exam time so that we can score higher in the exam" (S-1)

The study employed a case study method to explore if there are any differences in the learning experiences of student- teacher with visual impairment pursuing B.Ed special education after using the DAISY digital book. When the students were asked if they were interested in learning through DAISY book, S1 said it was very much interesting. Because, she is unable to see and learn, the option of listening to the notes and learning helps her study better. S2 said she usually feels hesitant to use new technology and she refers to YouTube to learn about the same. S1, S2 & S3 benefit from learning through assistive electronic devices like plectalk, angelpro, mobile track, etc. After using DAISY player to learn by themselves it was very useful and it was innovative. S1 also added that it was easy and comfortable for her to use that. Because of using DAISY her interest in learning more has developed. She has started reading more. The pronunciations and calling out facility helped her better understand the content. Initially it was a bit challenging for her to use this device but later she had learnt how to use it effectively. Using the page mark option, S2 feels easy to navigate between pages and refer the required page with much ease. S1 said that by using the forward and backward option, she could repeatedly listen to a content to understand it better. Being at a place without any disturbance and distraction, DAISY helps her to learn better. This helps S1 to be independent and learn on her own without anyone's help. This player has given S3, the confidence to succeed in her studies. The student S2 could easily understand and grasps the contents as if the teacher is teaching her in a live classroom. She finds difficult to identify the spellings in English. S1 also added that she still needs to learn and explore more about DAISY player. The color contrast option helps the student with low vision to understand better. The zoom in option, page mark option, everything helps the students very much she said. Many of her friends are using the player, and most

of them had given a very positive remark about the player, and motivated them to learn more and score more. S1 finally concluded that, using this DAISY book, the interest to read and learn more is being triggered.

CONCLUSION

To conclude the data analysed that, visually challenged students face a lot of difficulties in the learning process. DAISY player is boon to such learners. In the order of the learning skills LSRW, Listening takes the first place then Reading. It is easy for the learners to learn through listening the text. It is difficult for the visually challenged students to read a large number of books through the reading methodology that they have learnt. It is the preferable and better to learn through the DAISY player, where they can listen to the book in short time and without the help of others, which makes them improve their self-confidence. They can learn in the place where they are. It also has the forward and backward options to use repeatedly listen to a content to understand it better and clarify doubts. It is not only helpful for them to face their regular education but also to face the competitive exams too. This methodology helps them to compete with the normal student. It is easy for them to refer the titles provided in their curriculum and to collect materials of their own through DAISY book. This is also helpful for the learners with low vision where they can use colour contrast and can adjust the size of the letters to their levels. As the pronunciation is clear, it is easy for them to learn through this technology. It also helps them to learn the right pronunciation which makes them to feel confident when they dictate answer in their examination. It helps them not to be distracted from the lesson when they sit in a room alone to learn. So, they can learn a lot without any distraction. Compared to the Braille method, DAISY player helps them more. DAISY player fulfils all the drawbacks which students with visual impairment faced when they use Braille method-moreover; it is easy for them to carry as it is smaller in size. Finally, the students concluded that the DAISY is effective in enhancing their learning.

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