Impact of Multimedia tools to develop Reading and Writing Skills for ESL learners

Solanki Ankit Manubhai & Chandni Chhattani

Abstract:

The utilisation of multimedia tools is regarded as the most recent method for enhancing reading and writing proficiency in English as a Second Language (ESL) education. Digital storytelling, audiovisual content, and games, as applied interactive technologies, serve as effective tools, particularly due to their foundation in multimedia-assisted learning for the instruction of literacy skills. Data on ESL students were collected through a mixed-methods approach utilising pre- and post-intervention assessments, surveys, and classroom observations. The findings demonstrate that multimedia tools enhance students' reading comprehension and writing fluency, offer a contextualised learning experience, stimulate student engagement, and employ diverse learning methods. Furthermore, students who utilised interactive digital resources were perceived as more motivated and confident in their language acquisition. The former resulted from issues related to technological accessibility and instructional design. It underscores that teachers must intentionally use multimedia to align it with pedagogical objectives and maximise its benefits. Numerous studies investigating the application of technology in ESL instruction contribute to the ongoing discourse regarding its role in education during the digital era. These findings provide significant insights for ESL educators, course designers, and policymakers focused on the integration of technology to improve ESL instruction.

Keywords: Audio- Video Content; Digital Storytelling; Multimedia; ESL.

Introduction

English is essential for various people, as its usage varies according to their social, cultural, and economic backgrounds. Its vital role in global communication has elevated its status, making it more significant than

ever for nations worldwide. English is a critical educational medium in today's increasingly scientific landscape. As more people learn English, the need for more efficient language instruction has been met with the help of technology. Technology has been used in films, radios, TV, and tape recordings for a long time, and it has become an integral part of society that enables children to gain knowledge beyond what they learn in the classroom (Alotaibi& Kumar, 2019; Rana, 2013). Undoubtedly, technology has succeeded in replacing traditional language education.

Multimedia tools are software or applications used to create, edit, and manage various forms of digital media, such as audio, video, images, and animations. Multimedia tools include Adobe Photoshop, Adobe Premiere Pro, Final Cut Pro, Audacity, and Blender. These tools provide users with various options to manipulate and enhance Multimedia content, allowing them to create stunning visuals, captivating soundtracks, and immersive animations.

Innumerable multimedia tools can be used to aid students in improving their reading skills. The tools help students develop their comprehension ability and analyze text. Below are mentioned the examples of multimedia tools:

1. **Text-to-Speech Software:** According to Lemmetty, S. (1999) Text-to-speech software is a program used by a computer to convert written words to spoken words. Text-to-speech software may be useful to those who have reading problems or do not like to read themselves but like to listen to the written words. It can be useful to people who have to multitask, like listening to written content while doing something else. TTS synthesis is two-stage: text analysis and production of speech waveforms. In text analysis, the input is examined and converted into a linguistic representation, e.g., a phonetic. The generation of speech waveform consists of the combination of phonetic and prosodic information, often referred to as high-level and low-level synthesis.

   A speech synthesizer is a computer system for text-to-speech (TTS) conversion. It can be implemented in software or hardware and is used to convert standard language text into speech. (Allen, J., Hunnicutt, M. S., Klatt D. 1987)

2. **Word Games:** Lee (1980) asserted that the success of many language games in the classroom relies heavily on the proper class

organization. To ensure the success of these games, Lee outlined several strategies that could be employed to help manage the class.

3.   **Digital Books:** Digital books with interactive features can help to improve reading comprehension and provide a more engaging experience. Integrating e-books and Google Docs has significantly impacted literacy development, profoundly affecting the pedagogical writing process. Strobl C. et al. (2019) have demonstrated that such digital technology can help students improve at the micro- and macro-levels of academic writing. At junior high school, students are provided with the opportunity to use technology to foster their interests and skills. Access to online e-books has notably increased students' reading speed - up to 300 words per minute. Furthermore, students benefit from reading material concerning their interests, allowing them to progress in reading and writing. To this end, teachers should consider adapting writing and reading instruction and assessment tools, giving prompt feedback, and even rewarding students (Paul, J., &Criado, A. R., 2020; Tonks, S. M. et al., 2021)

4.   **Reading Applications:** Reading apps can provide a fun and interactive way to practice reading. Recent academic research has focused on the link between reading comprehension and technology. Technological advances are changing how people learn languages, especially reading. The studies look at things like e-books vs printed books. It was found that reading from paper requires less attention (concentration) than reading from any size or type of screen. (Zambarbieri, D.; Carniglia, E, 2012) Most people who took part said they liked to read printed books for fun, but they were more likely to use e-books in the future. Research showed that when students in rural schools used e-books instead of printed books, they learned more. The effects of iPads on reading and the use of mobile/smartphones to help with reading comprehension were also studied. (Huang, Y.N.; Hong, Z.R, 2015)

5.   **Multimedia Tools:** These are revolutionizing the way students learn to write. With interactive tools such as video and audio, students can interact with their writing in ways they never could. They can listen to a lecture, watch a demonstration or record their voice while they write to practice their skills. Multimedia tools are invaluable for improving writing skills and taking learning to the

next level. Here are the examples of Multimedia Tools for Writing Skills

- **MindMeister:** MindMeister is an excellent tool that can be utilized to improve writing skills. It is a brilliant mind-mapping application that efficiently organizes thoughts and ideas to form well-structured pieces of writing. With its easy-to-use interface, you can quickly create outlines and use them to develop creative, engaging stories or articles. It also strengthens arguments by linking relevant ideas and concepts. Mind Meister is the ultimate writing companion for authors who want to write faster, better, and more effectively. Mind Meister is a tool that can brainstorm ideas, organize writing, and develop content that will be noticed. Its user-friendly interface, robust functionalities, and dependable outcomes - Mind Meister is a priceless asset in any author's toolbox.

  Buzan and Buzan presented a specific technique in 1966 to enhance individuals' thinking capacity: a graphical device called the mind map. It comprises associated ideas that refer to a core subject and are depicted as nodes on a graph. When students apply them to learning, they type in basic keywords that are pertinent to the topic, thereby strengthening their logic, classifying ideas, and creating images that reflect connections between ideas. It can coordinate and classify ideas to build a "whole" and a beginning review instrument in online and offline classrooms. In collaborative learning, mind maps can be used in group brainstorming sessions, facilitating the free flow of ideas. Various studies have found that they improve comprehension and creative skills. In addition, collective teamwork is enhanced by the social inspiration of peers, which a mind map can provide. (Shih, Nguyen, Hirano, Redmiles, & Hayes, 2009; Wilson, Copeland-Solas, & Guthrie-Dixon, 2016)

- **Hemingway Editor**: Readability scores are purported to measure the ease with which texts can be read and understood. The most widely used measure, the Flesch index, is based on a formula that considers two statistics derived from the evaluated text: the average word length (in syllables per word) and the average sentence length. (in words per sentence) (Flesch 1948; Klare 1974; Tekfi 1987) Studies have shown that the Flesch index and its variants correlate with reading comprehension as determined by reading

tests. (DuBay 2006)

Multimedia education is transforming the lives of people not only in urban areas but also in rural areas. Multimedia education helps bridge the gap between rural and urban communities by providing access to engaging and interactive educational content. It empowers rural learners with the tools they need to succeed in life while also enabling them to stay connected with their communities. It is a very valuable tool for rural residents who might not otherwise have access to the traditional education tools. Educating using multimedia tools in rural settings can have numerous advantages, but it also has some disadvantages. Some of the points to be noted are as follows:

Justification for the Selection of Multimedia Tools in ESL Learning and their Alignment with CTML

The multimedia tools selected, Text to Speech Software, Word games, Digital books, Reading application, Mind mapping software (MindMeister), Hemingway editor, were selected based on their alignment to Cognitive Theory of Multimedia Learning (CTML) (Mayer, 2001) and their ability to improve the ability of the writing and reading skills of ESL learners. Specifically, each tool was chosen to implement the principles of dual channel processing, active learning, and reduced cognitive load defined in CTML and how to overcome the obstacles facing ESL learners in reading and writing.

1.   Justification for Reading Skill Development Tools

1.1   Text-to-Speech (TTS) Software

Why this tool?

As ESL learners, TTS software is vital for you as it brings phonetic awareness, listening comprehension, and pronunciation into a much more friendly format. This has made decoding unfamiliar words one of the main barriers to reading proficiency in ESL learners. TTS makes it possible for learners to hear the correct pronunciation of a word, increasing the chances of retrieving it and establishing auditory visual word associations.

CTML Alignment:

Modality Principle: Written and auditory words are made through different channels, thus allowing for better retention.

Redundancy Principle: hearing and seeing the words together helps the understanding and diminishes the cognitive overload.

Segmenting Principle: It enables learners to regulate the speech speed, or the learner may take the segments and play them or pause them to highlight difficult parts and learn at own pace.

1.2 Word Games

Why this tool?

The interactive word games help reinforce vocabulary acquisition, spelling accuracy and reading fluency in a gamified and interesting manner. Repetition and contextual learning are two key strategies to language retention, and they introduce them.

CTML Alignment:

Active Learning Principle: does it with learners engaged interactively and learning is done by problem solving and pattern recognition, not by mere reading.

Personalization Principle: a learner is given immediate feedback to correct the mistakes and reinforce learning in a real time assessment result.

Multimedia Principle: can integrate visual, textual, and interactive elements into the learning task, which is more effective for learning the topic than the text-based learning.

1.3 Digital Books

Why this tool?

Digital books that enable the highlighting, in-text definitions, and audio embedded into the text enhance reading comprehension and interest. Adaptable learning pathways such as adjusting font size, translating, and contextual hints are offered so that they cater to ESL students of various

types.

CTML Alignment:

Multimedia Principle: Uses text, images, and audio for better concept retention.

Signalling Principle: Highlighted text, clickable words, and annotation are interactive elements to lead the learner toward important information.

Principle of the segmentation: users will be able to regulate their reading speed and integrate such resources as a built-in dictionary or annotations into the text.

1.4   Mobile and Tablet Applications (Reading Apps.)

Why this tool?

Apps such as e-readers and phonics-based apps help promote the self-paced practice of reading and allow students to keep an eye on their reading progress. Highlighting text content, quizzes, and progress tracker are some features that help learners keep focused and increase their retention rates.

CTML Alignment:

Personalization: Difficulty in the app is at the learner's proficiency level.

Contiguity Principle: Text and images are placed next to each other, increasing understanding.

Feedback Principle: Interactive apps give students real-time feedback in phonetics, reading speed, and comprehension.

2.   Justification for Writing Skill Development Tools

2.1   Mind Mapping Software (MindMeister)

Why this tool?

ESL learners have a significant challenge to structure their ideas before writing. Visually organizing your thoughts through the sort of tools you

would see in mind mapping allows people as learners to create clear, and logical structure in essays and reports.

CTML Alignment:

Spatial Contiguity Principle: The ideas are mapped spatially which helps them to connect and easy to remember.

This principle of Coherence will help you break longer complex writing structures into more manageable components, thus eliminating the specter of Cognitive Overload.

Active Learning Principle: Unlike other protocols, the ClassSessionAdv protocol will encourage the students to generate and organize their ideas BEFORE they even start writing, and will help keep the logical flow steps moving in the right direction.

2.2   Hemingway Editor

Why this tool?

It is simply use to simplify the writing, clarify the writing, and give real time feedback about readability, sentence complexity and grammar. Hemingway Editor helps ESL learners learn how to avoid run on sentences, awkward phrasing and over using passive voice.

CTML Alignment:

Signaling Principle: Calls attention to complex sentences and common grammatical issues to help the student clarify these within the sentence.

Evaluation Principle: It works on the feedback principle —since the feedback is immediate, students can edit and refine their writing gradually.

The Cognitive Load Principle helps simplify concise and understandable writing, minimizing redundant or troublesome reading in a manifest.

Multimedia tools that offered structured, interactive, and research-based support for ESL learners according to CTML principles needed to be selected to maximize cognitive engagement. These allow multi sensory learning, different learning styles, real time feedback and personalization which are important for resolving in a second language for the reading and writing proficiency.

Benefits

- Multimedia resources can assist in narrowing the digital divide and bring to rural students access to educational materials that might otherwise be out of reach.

- These resources can also be used to involve students and make learning more interactive and enjoyable, which can be of special help for rural students with limited opportunities to engage in extracurricular activities.

- Multimedia resources can also assist in language learning and enhancing reading and writing capabilities in rural communities where there might be an increased number of students for whom English is not a native language.

Challenges in Rural Areas

- Technology and internet connectivity may be restricted in rural localities, and thus Multimedia resources may be inaccessible to the students.

- The teachers might lack the training or experience necessary to properly utilize Multimedia tools in class, and that can restrict the effectiveness of such tools.

- Certain students might lack the experience or background necessary to be able to make the most of Multimedia resources, which can make it challenging to effectively utilize these tools in a rural environment.

In general, the application of Multimedia tools in rural education can be an effective means of enhancing student learning, but it is critical to take into account the particular context and requirements of the students and teachers in the rural setting. It is also critical to make sure that these tools are applied with an integrated curriculum and instruction and that teachers receive the training and support necessary to apply them effectively in the classroom.

Learning through Multimedia: Issues for Learners

In the mid-1990s, higher education faced significant pressure to incorporate technologies like Multimedia due to student demands. Students de-

sired more flexibility in their higher education delivery, and those coming from the school system were increasingly proficient in technology and highly motivated to improve their skills in this area. (Trevitt, 1994) As Spotts and Bowman (1995) observed, many of these students grew up with technology and were more proficient in its use than their instructors, making them more "technologically literate".

Apart from a desire for more flexible learning options, little was understood about students' attitudes towards and the use of technology. According to Cox (1994), while it was simple to document the number of computers present in a particular institution, the types of software installed, and the extent of their usage, little data existed regarding how students felt about using computer-based technologies and their readiness to use technology in the workplace. The subsequent discussion examines the problems and research discoveries from the mid-1990s linked with the use of technology by tertiary-level students.

Many authors believe multimedia to be advantageous in enhancing teaching and learning. Slaughter and Knupp (1995) argued that integrating text, images, sound, colour, animation, and video into a single package that enabled users to control the presentation of information provided a powerful and adaptable tool for innovative teaching and learning. Valmont and Blanco (1995) opined that teachers must utilize Multimedia technology because it is capable of making dull activities enjoyable learning experiences for contemporary visually focused students. Grandgenett et al. (1992) also suggested that Multimedia would render otherwise challenging subjects easier to comprehend by making them real, hence creating a bridge between classroom teaching and reality.

Multimedia technology can be used to improve educational quality in several ways. Through the use of Multimedia components like text, images, audio, and video, educators can design interactive learning experiences that appeal to multiple learning styles and preferences. This can improve student motivation, interest, and understanding of abstract concepts.

Multimedia can also give access to a wider array of learning resources, independent of geographical location. Online learning resources can allow students to learn materials at any time and from anywhere, which can enable them to learn at their convenience and pace. It can facilitate bridging the divide between learners across the globe and minimizing disparities in educational levels.

In the mid-1990s, it became clear that a number of faculty members were concerned about integrating technology into their courses. But nothing was done to place these concerns in a theoretical context. Available literature on teacher beliefs and practices indicated that the use of theories of change could be useful for theorizing about faculty attitudes and behaviors. Understanding how individuals respond to change could help shed light on the intricacies of integrating technology into teaching practices.

Use of multimedia facilitates the cultivation of students' communication skills because conventional teaching methods of English are restrictive in the sense that they disallow students to gain complete insight into the structure, meaning, and function of the language. This practice has the potential to leave students as passive recipients of information. Nevertheless, the use of Multimedia technology has been an invaluable resource for English teaching and learning, providing learners with more substantial incentives and better equipping them for future competitiveness in the work environment. (Healey et al., 11)

Therefore, it can be argued that the utilization of multimedia enables the ESL learners to improve their reading and writing abilities.

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