

# Investigating Multimedia Integration Among ESL Teachers in Teaching Reading Comprehension: A Systematic Literature Review

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## Abstract

Multimedia integration in the context of reading comprehension teaching refers to the use of multimedia technologies and resources to aid students' comprehension of textual materials. However, the study involving multimedia integration among teachers in reading comprehension is still lacking despite its bigger role and impact in the education field. Thus, this review revealed the use of multimedia in reading instruction in enhancing comprehension teaching. However, there are challenges that teachers face in implementing multimedia in their instruction. Using two databases, Mendeley and Educational Resources Information Centre (ERIC), 10 articles were extracted from 123 articles with exclusion and inclusion criteria taken into consideration. The study finds that multimedia appears to positively impact students' engagement, comprehension, and language learning, according to teachers' perceptions and students' experiences. But there are problems that must be solved, such as a lack of infrastructure, resistance to technology, the demand for professional development, and institutional support. The study also highlights that with proper strategies and support, multimedia integration has the potential to greatly enhance language learning and instruction, creating engaging and effective learning experiences for students.

**Keywords:** Multimedia, ESL, PRISMA, Reading Comprehension

## Introduction

Contiguity refers to the spatial and temporal proximity of words and visuals. According to McKee (1997) multimedia is "an evolving set of teaching and learning materials that integrate a variety of media types, including text, graphics, animation, audio, and video" (Wilson & Tally, 1991). Multimedia refers to the use of a variety of media in the classroom, such as text, graphics, audio, video, and animations. Multimedia can be used to deliver information in a more engaging and dynamic way, which can help pupils comprehend and retain the material being taught. The use of both words and visuals to communicate information is referred to as multimedia.

Multimedia integration in education refers to the use of diverse media, such as text, images, audio, and video, to improve the learning process. It has been discovered that using multimedia integration in particular helps students' reading comprehension. The use of several media forms, such as text, graphics, music, video, and animations, to increase understanding or memorization is known as multimedia integration. With the use of features like integration, diversity, and interactivity, multimedia technology enables people to relate to, experience, apply, and convey knowledge or ideas in context. Using multimedia, students can enhance their reading abilities in terms of phonological awareness, phonics, fluency, vocabulary, and reading comprehension.

The capacity to comprehend and extrapolate the meaning of written text is known as reading comprehension. It involves a number of cognitive functions, including working memory, attention, perception, and language processing. Reading comprehension is the result of two key processes, word decoding and language comprehension, in accordance with theoretical theories of reading comprehension including the Simple View of Reading and the Construction-Integration Model. Language comprehension is being able to comprehend the meaning of sentences and other larger units of discourse, whereas word decoding refers to the capacity to decode and recognise individual words.

Reading for comprehension, or drawing meaning from what you read, is the ultimate goal. This may be taken for granted by seasoned readers, who may undervalue the value of reading comprehension skills. The process of understanding is tactical and interactive. The book must be analyzed, internalized, and personalized by the students rather than being read aloud to them. In order to comprehend a text, readers must also engage in higher-order processes, such as inference-making, critical thinking, and evaluation. These processes involve using prior knowledge, context, and textual clues to make connections between ideas, identify main ideas and supporting details, and draw conclusions.

A reading program that works well involves tests of letter knowledge, phonemic awareness, decoding, fluency, and comprehension, according to a Reading Rockets article. Reading comprehension is an essential skill for academic and personal success, and it is often assessed through standardized tests, such as the PT3, SPM and classroom-based assessments. Effective instruction in reading comprehension involves teaching pupils strategies for decoding, comprehension, and critical thinking, as well as providing opportunities for practice and feedback.

Based on the issues faced by the educators, the following research objectives have been developed:

RO1: To study how integration of multimedia such as videos and images improve the teaching of reading comprehension skills among teachers

RO2: To investigate the challenges the educators face when integrating multimedia into reading comprehension instruction.

## **Literature Reviews**

### *Multimedia Integration Among Teachers*

According to one study, using multimedia learning to teach reading comprehension is beneficial since the combination of numerous media elements scaffolded the process of

comprehending. Audio, on the other hand, is the least useful in assisting students (Abdul & Abdul, 2020). A thorough research review found that using multimedia to increase reading comprehension abilities is effective (Noordan, M. N. H. & Yunus, M., 2022)

Alise B., Tracy G., Judy Z. from an article 'Using Multimedia to Support Reading Instruction', using multimedia reading resources and environments provides students with a number of customizable aids that can be especially advantageous as they read rich, content-area books in history, social studies, science, and mathematics and confront academic understanding processes. A study discovered that technology can improve reading comprehension, and diverse procedures and talents are targeted in the international literature about computerised reading comprehension training programmes (Capodiecici et al., 2020).

### *Reading comprehension skill*

Reading comprehension is the ability to derive meaning from text. The ultimate goal of any reading instruction is to help students understand literature. The process of comprehension is challenging and complex, requiring many different skills. When combined, these skills help reading achieve its ultimate goal. The capacity to understand what has been read is known as reading comprehension (Andrew, n.d). Reading for comprehension, or drawing meaning from what you read, is the ultimate goal. This may be taken for granted by seasoned readers, who may undervalue the value of reading comprehension skills. The process of understanding is tactical and interactive. The book must be analysed, internalised, and personalised by the students rather than being read aloud to them.

Reading is a difficult undertaking that necessitates educating readers the language and the text's ideas (Joni, 2017). Giving pupils a lot of reading comprehension practise opportunities entails helping, encouraging, and guiding them as they comprehend the text. Teaching reading comprehension is a crucial component of literacy instruction because it equips students with the skills and information necessary to correctly understand, analyse, and interpret written texts. One example of a technique used by educators is the use of pre-reading activities to activate prior knowledge, vocabulary building to enhance word knowledge, active reading strategies to foster engagement, critical thinking-sparking questioning techniques, textual analysis to explore literary elements, explicit teaching of comprehension strategies, and reading-love-fostering.

Before obtaining formal training in reading comprehension techniques, developing readers must be able to read with some proficiency (Tierney, 1982). Reading without understanding is a difficult, pointless game of word calling. It is not overstated to say that a student's entire life is significantly impacted by how well they develop their comprehension skills. To help students gain the knowledge, skills, and experiences necessary to become proficient and enthusiastic readers is a primary goal of teaching reading comprehension (Texas Educational Agency, 2002).

### *Cognitive Theory of Multimedia*

A cognitive theory of multimedia learning gives empirical concepts to develop multimedia learning environments (Sorden, 2005). The cognitive theory of multimedia learning provides a framework for creating multimedia instructional messages with a higher likelihood of

leading to meaningful learning. The cognitive theory of multimedia learning assumes that people have a limited capacity for information processing and that multimedia communications should be structured to lessen cognitive load. The Cognitive Theory of Multimedia Learning (CTML) provides a strong theoretical framework for designing effective online multimedia lessons. CTML is based on three main assumptions:

1. The active processing hypothesis states that learners actively participate in the process of learning new information. They actively interact with the information to make sense of it rather than being passive recipients of it.
2. The theory of limited cognitive capacity states that students' ability to handle information in working memory is constrained. The portion of our memory that temporarily stores information while we process it is known as working memory. CTML acknowledges that students' working memory is restricted, so instructional designers must take this into consideration when creating multimedia classes.
3. The dual-channel assumption states that students have two separate channels for information processing. Visual and aural channels are included here. CTML is aware that simultaneous presentation of information in both channels helps learners process it more efficiently.

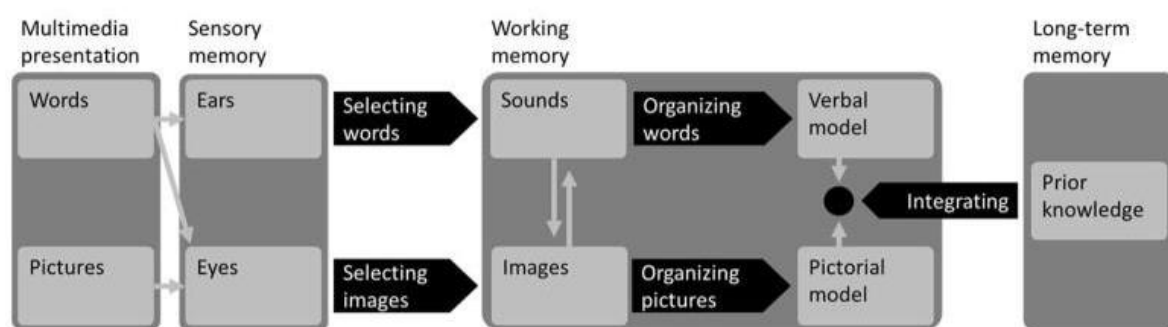
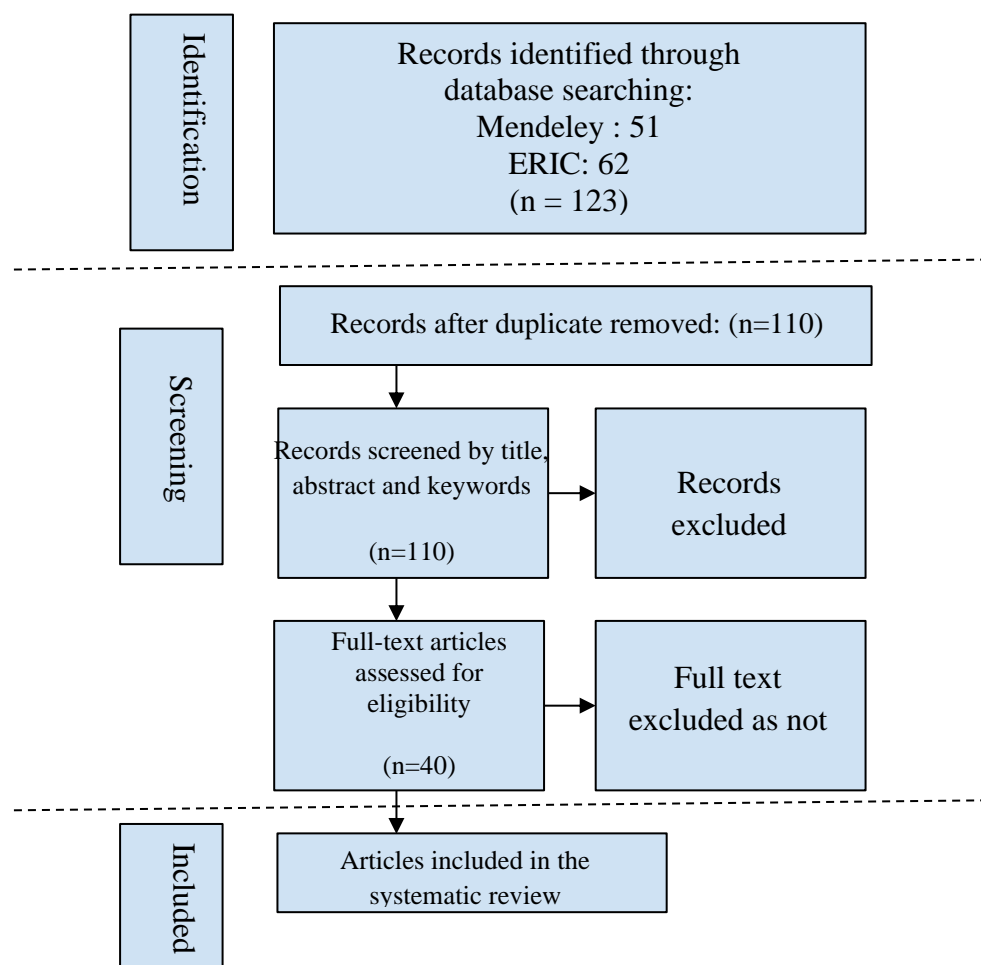


Figure 2.0 The cognitive theory of multimedia learning (Mayer, 2019)

The dual-channel assumption, which entails processing verbal and nonverbal information separately, can be used to combine them in well-designed multimedia classes to make the most of learners' limited cognitive capacity (Mayer, 2021; Paivio, 1969).

### Methodology

The identification, screening, eligibility, and included processes are the four steps that make up the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology, as depicted in Figure 3.0. PRISMA's comprehensiveness and applicability to other investigations have made it a popular tool among researchers. As a result, this study's objective and the method of the systematic review are as follows.



### Identification

The PRISMA model's identification stage attempts to systematically find and choose pertinent studies that satisfy the inclusion and research question requirements. The chosen research will then move on to the PRISMA model's later stages, which include full-text article screening, data extraction, and result synthesis.

Specific inclusion and exclusion criteria for the systematic search were developed during the identification step. The inclusion criteria included research on the use of multimedia in teaching reading comprehension that has been published in peer-reviewed publications. Most of the participants in this research had to be educators who have written in English within the previous ten years. Studies published in languages other than English, studies published more than ten years ago, studies that did not focus on the use of multimedia in teaching reading comprehension, and research that used students as the primary subjects were all omitted from the study area.

Table 3.1

*Search string used in this study*

Database	Search string
Mendeley	"ESL Educators" OR "Multimedia Integration" OR "Multimedia Materials" OR "Educational Multimedia"
ERIC	"Language teachers" OR "Multimedia materials" OR "Second Language Learning" OR "Second Language Teaching" OR "Multimedia Integration"

*Screening*

Reviewing titles, abstracts, and full-text articles based on the specified inclusion and exclusion criteria is what happens during the screening stage of the PRISMA model. According to the provided criteria, the screening stage could be organised. The possibly appropriate research from the earlier stage's full-text papers will be acquired, and their eligibility will be evaluated. Each article will be carefully examined to see if it satisfies the inclusion and exclusion requirements.

Table 3.2

*Inclusion and exclusion criteria*

Inclusion Criteria	Exclusion Criteria
The article must be published in a peer-reviewed journal.	The study must not focus on the integration of multimedia in teaching reading comprehension.
The study must investigate the integration of multimedia in teaching reading comprehension.	The participants in the study must not primarily be students.
The participants in the study must primarily be teachers.	The participants in the study must not primarily be students.
The publication date of the article must be within the last 10 years from the current year.	The publication date of the article must not be more than 10 years ago.

Following the PRISMA model's screening step, the objective is to find and include studies that adhere to the precise standards indicated in the inclusion and exclusion criteria. This procedure guarantees a methodical and open approach to choosing the studies that are most pertinent to the current research question. A total of 10 articles were found to be possibly appropriate for inclusion in this systematic review after being carefully chosen in accordance with the inclusion and exclusion criteria. However, because of their comparatively little

comprehensiveness, the researcher disregarded conference proceedings and book chapters from consideration.

#### *Included*

The PRISMA model's included stage makes sure that only research satisfying the established inclusion criteria is chosen for further examination. Following this stringent procedure, the systematic review may offer a thorough and trustworthy synthesis of the research results regarding the use of multimedia by teachers to teach reading comprehension.

Table 3.3

#### *Summary of the selected studies*

<b>Study</b>	<b>Authors</b>	<b>Database</b>	<b>Aim</b>	<b>Sample</b>	<b>Findings</b>
STUDY 1	Hashim, H., & Md. Yunus, M. (2012)	Mendeley	to investigate the issues and challenges faced by the ESL lecturers in the use of a courseware named TELL ME MORE in a polytechnic in Melaka.	Four female ESL lecturers with a minimum of one year experience to a maximum of six years experience of teaching in a polytechnic in Melaka and all of them possess a degree in teaching English as second language 138 511 (TESL) from various local universities.	Findings show that the courseware is a useful tool for language learning. However, there are certain challenges that the ESL lecturers had to face such as time and lack of facilities
STUDY 2	Arumugam N., et.al. (2021)	Mendeley	to investigate the challenges faced by English Second Language (ESL) educators in online teaching.	20 ESL educators of Private Higher Learning Institutions	The findings further revealed that ESL educators' work-life imbalance had emotionally impacted their families and social relations, which in



					<p>turn had affected their professional lives. Thus, by understanding the problems, educational institutions can come up with short and long-term strategies to ensure that ESL educators can be productive regardless of the mode of teaching activities. Among them would be introducing pertinent courses in online teaching, Internet training, and the integration of multimedia resources that could improve online teaching.</p>
STUDY 3	Thang, S. M., et. al. (2014)	Mendeley	to explore teachers' concern regarding technology in the Malaysian context and address the gap in knowledge by sharing the concerns of four English as Second Language (ESL) instructors in terms of their attitudes and acceptance of the use of technology in the form of digital storytelling in teaching ESL at a Malaysian public	ESL teachers	<p>The findings revealed that the teachers perceive the technology to be beneficial to their students to a certain extent; however, resistance to the technology was particularly strong in two of the instructors and this could lead to failure in technology integration.</p>



			university		
STUDY 4	Azmuddin, R. A., & Mohd Radzuan, N. R. (2020)	Mendeley	to highlights pedagogical benefits for ESL learners from various e-learning environments which are adapted in higher education context, focusing on HEIs in Malaysia	ESL learners	Selecting the most appropriate technological tools in designing tasks and assessments is a very complex process, in which the principles and theories of language learning and acquisition must be taken into account. The instructors must always update their knowledge and ability to keep up with the rapid changes in technologies. Besides that, instructors must also take into consideration the learners' social and economic constraints even though these tools are found to support language learning.
STUDY 5	Ahmed, B. N. S., El-Obeid, M. S. E. H. (2022)	Mendeley	to investigate the impact of ICT on the learner's motivation, linguistic performance and vocabulary.	26 students, who majored in English language	The study concluded with some recommendations for English teachers, learners and designers of English language syllabi.
STUDY 6	<u>Jiang, L.</u> , Yu, S. &	ERIC	to find out how teachers collaborate with	four English teachers' experiences	The findings demonstrate that the teachers

	Zhao, Y. (2021)		each other, what challenges they may encounter and how they cope with such challenges in collaborative action research (CAR)	of incorporating DMC in a university-based English curriculum in China.	experienced difficulties in relation to establishing relevance, being digital novices, catering for students' diversified composing needs, and an institutional failure to recognise the increased workload
STUDY 7	Zakaria, N. Y. K. & Hashim H. (2020).	ERIC	To find out the response to current language learning situations related to writing skills and study for a new method of assessment in ESL context.	32 ESL students in a public university in Malaysia	ESL learners found that game-based assessment is highly engaging despite some learners' anxiety towards the use of technology. ESL instructors also highlighted the importance of learning objectives in assessing students' performance regardless of the tools used.
STUDY 8	Yulian, R., Ruhama, U., & Utami, P. Y. (2022).	ERIC	to examine the perception of EFL slow learners in terms of the integration of an inclusive technology with authentic multimedia-assisted language learning (AMALL).  to discover the	30 EFL learners	students perceived authentic multimedia-assisted language learning provide some advantages in terms of usefulness, easiness, and effectiveness for speaking skill.

			<p>impact of authentic multimedia-assisted language learning on their speaking performance.</p> <p>to examine the perceived benefits of this technology for language learning.</p>		
STUDY 9	Fook, C. Y., et. al. (2011).	Mendeley	to investigate the ESL pre-service teachers' attitudes, competency and preparation in integrating ICT in their teaching and learning activities.	70 pre-service Teaching English as Second Language (TESL) teachers in the Faculty of Education from a public university in Malaysia	<p>pre-service teachers do possess positive attitudes, moderate level of competency and are adequately prepared in integrating ICT in the classroom</p> <p>the lack of facilities and technical malfunction in schools as the biggest obstacle for the pre-service teachers in their efforts to integrate ICT in the classroom.</p>
STUDY 10	Manner, J. C., & Rodriguez, D. (2010)	Mendeley	to explore the apps that are most commonly recommended for language learning, investigate features of commonly recommended ESL learning apps, and develop an app		the quality app features in curriculum include learning objectives, rich and appropriate learning content, accurate content, various learning activities, and various learning

			evaluation tool that might inform selection of ESL learning apps for use in teaching or recommendations to parents and learners.		topics; productive app features in pedagogy are detailed feedback on learning, clear levels of difficulty, inclusion of collaboration and social contexts, proper use of gamification, and personalized options; well-design app features in design are appropriate multimedia integration, off-line function, app support, and free of technical issues.
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#### *Data Analysis Procedure*

Articles were selected and exported to referencing software, Mendeley. Researchers gather relevant data sources such as research papers, educational journals, surveys, interviews, and any other credible sources that provide insights into the integration of multimedia in reading comprehension instruction. This is to ensure that the collected data directly addresses the research questions and covers a diverse range of perspectives to answer the following research questions:

RQ1: How does the integration of multimedia such as videos and images improve the teaching of reading comprehension skills among teachers?

RQ2: What challenges do educators face when integrating multimedia into reading comprehension instruction?

This review classified the themes for the research topics by doing an interpretive analysis of the articles. The next section discusses the papers' findings for both study questions.

#### **Result and Discussion**

##### **RQ1: How does the integration of multimedia such as videos and images improve the teaching of reading comprehension skills among teachers?**

The benefits of multimedia integration on language learning and instruction are highlighted via an in-depth evaluation. The value of integrating multimedia into teaching practises is demonstrated by teachers' perceptions that technology and multimedia tools are advantageous for pupils. The effectiveness of game-based evaluation for ESL students and its ability to interest students further highlight the potential of multimedia integration to improve learning outcomes.

Additionally, the benefits of real multimedia-assisted language learning for speaking abilities are acknowledged by students, which emphasises the efficiency of multimedia in assisting language acquisition. The qualities of high-quality language learning apps—such as strong multimedia integration—further emphasise how crucial it is to use multimedia effectively to produce enjoyable and successful learning experiences. Additionally, multimedia facilitates the visual representation of written content, improving students' understanding of the material.

The use of multimedia, such as videos and images, in the instruction of reading comprehension abilities has several positive effects on teachers. Contextualization is one of these advantages, where movies and pictures give genuine examples and real-world circumstances, making the reading material more accessible and engaging for pupils. Students' understanding is improved when such multimedia is used because they can make connections between the text and their personal experiences or past knowledge. Multimedia also supports multimodal learning by enabling the fusion of several forms of communication, such as visual, aural, and written components. This method accommodates a variety of learning preferences and styles and allows students to interact with the material through several senses. As a result of processing the information thoroughly and using several senses, their comprehension skills develop.

### **RQ2: What challenges do educators face when integrating multimedia into reading comprehension instruction?**

The results highlight a number of key concepts for multimedia integration in ESL instruction. The successful use of multimedia might be hampered by issues including a lack of facilities and opposition to technology. It is essential to have access to the right technological tools, such as computers, projectors, or multimedia equipment, in order to integrate multimedia aspects into teaching practises successfully. To fully capitalise on the advantages of multimedia integration, adequate facilities and equipment are required. The platforms and instruments of technology are frequently used in multimedia. In order for educators to embrace multimedia integration and take use of its potential to improve teaching and learning, opposition must be overcome and a positive attitude towards technology must be fostered.

Nevertheless, educators can overcome these difficulties by offering pertinent training, resolving work-life balance issues, and providing institutional support. This is crucial when integrating multimedia since instructors must be knowledgeable about a variety of multimedia tools, platforms, and software. Teachers' skill and confidence in using multimedia effectively for instruction can be increased by offering training and courses on the topic. For teachers to be empowered to incorporate multimedia effectively, professional development and institutional recognition are essential.

The introduction of pertinent courses and the use of multimedia resources in online instruction are further potential for multimedia integration. It is essential to establish a welcoming environment that values multimedia integration and allots the time and resources required for implementation. Institutions should help educators successfully integrate multimedia components into their teaching practises by offering them direction, support, and recognition. For instance, offering pertinent courses in online education and Internet training

can give teachers the know-how and skills they need to successfully incorporate multimedia into online learning environments. Educators can successfully incorporate multimedia to improve ESL education and produce fun learning experiences by addressing problems, offering support, and using possibilities.

### **Conclusion**

The findings emphasise both the many advantages and difficulties of using multimedia in language learning and training. According to teachers' perspectives and students' experiences, multimedia has a good effect on students' engagement, comprehension, and language acquisition. Videos, pictures, and other multimedia components help contextualise knowledge, promote multimodal learning, and improve its visual representation.

To achieve successful multimedia integration, however, issues including a lack of infrastructure, opposition to technology, the need for professional development, and institutional support must be addressed. Educators can overcome these difficulties and fully use the potential of multimedia in ESL instruction by offering pertinent training, resolving work-life balance concerns, and providing institutional support. The usage of top-notch multimedia resources and chances for multimedia integration in online instruction can also improve the learning experience. Overall, multimedia integration has the potential to significantly improve language learning and instruction, providing students with effective and engaging learning opportunities.

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