

Boosting Preservice EFL Teachers' Reading Skills via Visual Media

Olusiji Adebola Lasekan^{1*}, Viviana Rojas¹, Lucia Ubilla²

¹Universidad Católica de Temuco, Temuco 4780000, Chile, ²Universidad de La Frontera, Temuco 4780000, Chile. *Corresponding Author's Email: olasekan@uct.cl

Abstract

This study investigates the efficacy of metacognitive reading strategies, supplemented with visual media, in improving English reading comprehension abilities among pre-service English as a Foreign Language (EFL) educators. The study intends to enhance reading comprehension test performance by employing a quasi-experimental design that includes pre-test, intervention, and post-test phases. The study included a total of 102 preservice EFL teachers who were currently engaged in a course focused on communicative language learning in an English pedagogy undergraduate program. The intervention consisted of utilizing metacognitive methods in conjunction with visual media. The effectiveness of this approach was assessed through the administration of a widely recognized Reading Comprehension Test (RCT), a Metacognitive Strategy Questionnaire (MSQ), and supplementary visual media. The results demonstrate a substantial improvement in average reading comprehension scores, increasing from 0.5 to 0.72 after the intervention. The study utilized a mixed-methods approach, including questionnaires and interviews to collect qualitative data on students' assessments of the intervention's efficacy. The findings indicate that students consider the metacognitive strategies to be useful at all stages of reading, including pre, while, and post reading. The incorporation of visual media, such as videos and infographics, played a crucial role in promoting metacognitive knowledge, monitoring, and control strategies. This study emphasizes the potential of integrating metacognitive strategies with visual media to greatly improve reading comprehension skills in English as a Foreign Language (EFL) settings.

Keywords: EFL Reading Comprehension, Metacognitive Reading Strategies, Preservice EFL Teachers, Visual Media.

Introduction

Reading activities in EFL classrooms are interactive and primarily led by educators. These educators use different methods to improve the importance and effectiveness of reading tasks. Research indicates that an optimal approach to managing reading activities involves three distinct phases: pre-reading, while-reading, and post-reading (1). Every phase is crucial and forms a necessary part of the reading process. During the pre-reading phase, instructors strive to engage students' existing knowledge and establish the framework for the forthcoming text (2). Thorough preparation is essential for effectively engaging students and establishing a structured foundation for presenting new information. During the While-reading phase, the main emphasis is on understanding the text. Strategies like guided reading and questioning are utilized to enhance comprehension (3). Finally, the post-reading phase includes activities such as discussions and summarization, which help to solidify the acquired

knowledge and enhance reading skills (4). When teaching language, it is crucial to carefully consider these phases in order to effectively develop and improve students' reading skills. The systematic method outlined in these three stages not only aids in understanding the text, but also plays a role in the overall development of reading skills, which are crucial in language learning and literacy (5). Reading comprehension skills play an essential role in the second language learning process for preservice English as a Foreign Language (EFL) teachers (6). In addition, the development of reading comprehension skills enhances critical thinking capabilities. This involves the analysis, interpretation, and synthesis of information in a second language, which is an essential skill to instill in future teachers of English (7). In the end, the acquisition of robust reading comprehension abilities provides them with the necessary resources to steer their students towards achieving English language proficiency in an

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increasingly interconnected world.

Metacognitive reading strategies are essential for improving reading comprehension. They are cognitive tools that help readers take control of their thinking processes and enhance their understanding of the text (8). These strategies involve various cognitive activities that allow readers to actively interact with text, establish connections, and derive deeper meaning from the material (9). In other words, metacognitive reading strategies have the capacity to enhance students' understanding of text, boost their problem-solving abilities, and foster their independence and strategic thinking as readers.

Video media can significantly boost metacognitive reading strategies by providing engaging and interactive learning experiences that encourage metacognition while reading (10). It is important in helping learners better understand reading goals and strategies through visual and auditory representations, which improves their metacognitive knowledge (11). Video media engages learners in interactive content, encouraging active assessment of comprehension and aligning with metacognitive monitoring strategies (12). Moreover, it offers learners the chance to manage their cognitive processes while engaging in reading tasks (13). In general, the thoughtful integration of video media can be used to facilitate the process of reading comprehension. In our English Pedagogy program, we offer a core course that aims to enhance the communicative competence of our preservice EFL teachers. The linguistics competence course focuses on developing learners' reading comprehension, listening comprehension, written production, and oral expression skills. The students' English proficiency is assessed at the end of the program through the administration of the international Cambridge Advanced Exam (CAE) in their fifth year of training. Regrettably, the 2019 evaluation showed that reading comprehension is found to be difficult among the students. Based on our initial findings, it is clear that students' motivation to read, reading with a sense of purpose, and utilizing metacognitive reading strategies are essential for establishing effective reading comprehension (14). Thus, we aim to create a project that focuses on using visual media to enhance metacognitive reading strategies. The main goal is to help students in the English Pedagogy Program

improve their reading comprehension skills by incorporating visual media-supported reading strategies. Thus, the objectives of this research are to evaluate if the intervention of metacognitive reading strategies, supported by visual media, enhances reading comprehension test scores, to assess students' perceptions of the effectiveness of these strategies in facilitating pre-reading, while-reading, and post-reading stages, and to determine if visual media aids in fostering metacognitive knowledge, monitoring, and control of reading comprehension.

Theoretical Ground

John Flavell's metacognition theory, which was developed in the 1970s, offers a comprehensive framework for comprehending metacognitive reading strategies (15). This theory is centered around the process of metacognition, which involves reflecting on and controlling cognitive processes. It has significant implications for improving reading comprehension. Flavell's model includes three main components: metacognitive knowledge, metacognitive monitoring, and metacognitive control. Understanding metacognitive knowledge involves individuals gaining insight into their own thinking abilities, including being aware of their cognitive processes, reading objectives, and their strengths and limitations as readers (16). This knowledge helps readers establish clear reading objectives, infuse their reading with purpose, and make informed decisions about which reading strategies to use. Metacognitive monitoring requires individuals to continuously assess their own understanding, recognize challenges, and quickly address them (17). Metacognitive control requires the active regulation of cognitive processes. These strategies allow readers to regulate their speed, employ different comprehension techniques, and modify their approach based on the specific texts or challenges they encounter (18). Thus, readers improve their comprehension by consciously deciding how to interact with and move through the text (19). Flavell's theory on metacognition offers a valuable framework for enhancing reading comprehension by focusing on metacognitive knowledge, monitoring, and control.

Conceptual Framework

Within the proposed conceptual framework, reading strategies are seamlessly incorporated into a three-phase reading model - pre-reading,

while-reading, and post-reading - to optimize reading comprehension. As shown in Figure 1, the framework also highlights the use of visual media to enhance these reading strategies, with a specific focus on metacognitive elements such as monitoring, knowledge, and control.

Pre-reading: In the beginning stage, it is important to use strategies like recalling previous knowledge, establishing reading goals, and making predictions about the content (2). Using visual media such as concept maps or thematic images has been found to enhance background knowledge and spark curiosity, as demonstrated in a study conducted by (20). These tools assist students in developing connections with the new material, which helps them mentally prepare for the reading task.

While-reading phase: Various strategies such as questioning, clarifying, and summarizing are utilized (3). Using visual media, such as graphic organizers and interactive multimedia, can help enhance the while-reading phase. For example, using interactive videos or infographics can help

provide context and improve understanding (21). Using visual aids helps students monitor their understanding and make adjustments to their reading strategies as needed.

Post-reading phase: Various strategies are utilized, including reflecting on the text, synthesizing information, and evaluating content (4). Visual media can be utilized through reflective journals with visual prompts or digital storytelling tools. These tools help students visualize their thoughts, which improves their understanding and control over their own thinking. Students have the opportunity to enhance their comprehension, assess their reading techniques, and improve their future reading assignments (5).

Incorporating visual aids alongside reading strategies throughout the three phases enhances students' ability to comprehend, analyze, and reflect on the reading material. This, in turn, contributes to the development of improved reading comprehension and literacy skills (5).

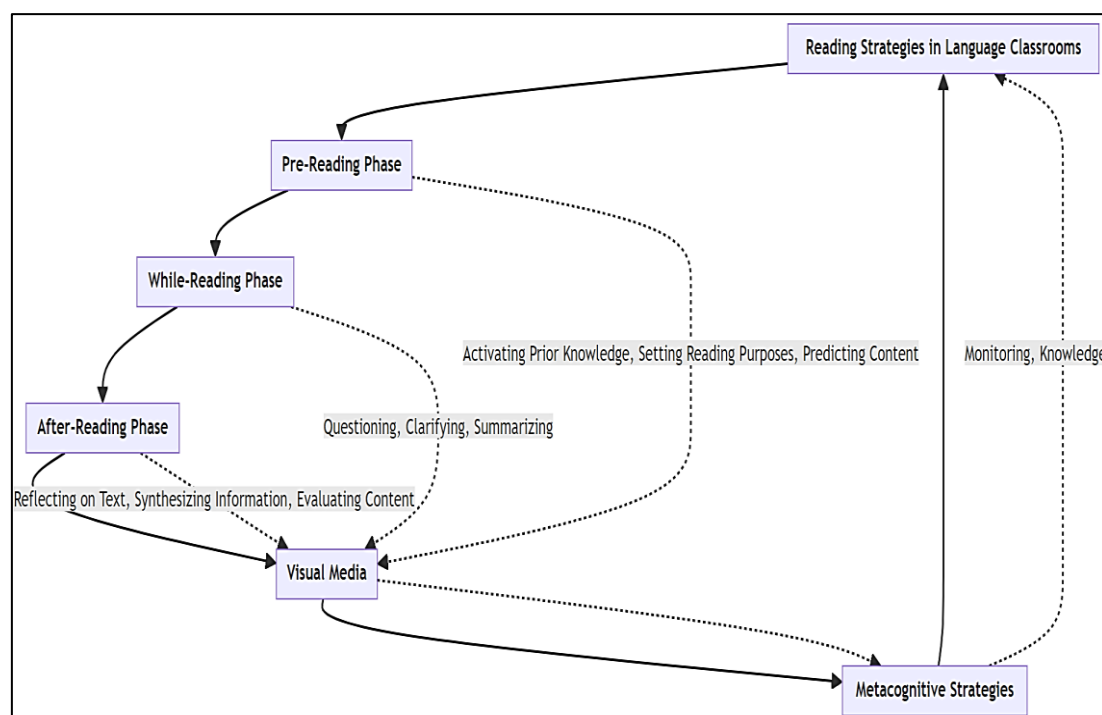


Figure 1: Enhancing Reading Strategies through Visual Media: A Focus on Metacognition - Monitoring, Knowledge, and Control

Numerous educational researches have been placing greater emphasis on the incorporation of visual media into reading strategies and how it affects reading comprehension. A key study in this field showed notable enhancements in reading comprehension by integrating visual media into reading strategies. For instance, research revealed

that students' average reading comprehension score increased significantly from 38.92% to 68.58% when using teaching materials tailored to various learning styles, including visual media (22). A study found adoption of graphic organizers led to significant improvements in reading comprehension. The pre-test scores averaged 5.2

out of 10, while the post-test scores averaged 9.5 out of 10 (23). A comprehensive approach has been recommended by other study (24), emphasizing the advantages of incorporating visual media throughout the reading process.

Many studies have explored the use of reading strategies to enhance English reading comprehension in various stages: pre-reading, while-reading, and post-reading. When it comes to the pre-reading stage, one strategy is to use a K-W-L organizer (25) to help activate prior knowledge. This can improve learners' comprehension by connecting their background knowledge to the texts. In addition, the pre-teaching of vocabulary is implemented to define and explain key words that are crucial for the initial understanding of the text (26). This approach aligns with Vygotsky's sociocultural theory, which suggests that learning is closely tied to previous experiences (27). During the while-reading stage, a graphic organizer is utilized to help students understand the main ideas of texts (25). In addition, using of self-questioning methods was found to be effective in improving comprehension. This approach allows students to actively monitor their understanding and develop independent learning skills (28). According to Mustofa *et al.*, (n.d.), various reading strategies can be used during the while-reading stages to actively engage learners and augment their comprehension of the text. Finally, post-reading strategies play a crucial role in solidifying comprehension and promoting thoughtful reflection on the text. These strategies involve summarizing the main points and generating relevant questions. Summaries demonstrate a deep understanding of texts and aid teachers in assessing students' grasp of key concepts (29). On the other hand, asking questions about the material read promotes the integration of new knowledge with prior knowledge (30). By incorporating pre-reading, while-reading, and post-reading strategies, a more complete understanding of texts can be achieved (31).

Recent educational research has shown that integrating visual media into reading strategies has a significant impact on improving metacognitive knowledge, monitoring, and control in reading. Previous studies highlight the importance of multimedia resources in enhancing metacognitive aspects of reading (32). In the study, the participants acknowledged the usefulness of

visual media in meeting the various learning styles and needs, with a focus on metacognitive knowledge in reading strategies. Research has shown that visualizing eye-movement graphs during while-reading can support metacognitive inference activity (33). Additionally, cognitive effort in text processing and reading comprehension has been studied in both print and tablet formats (34). Regarding metacognitive monitoring, the idea that visual media aids in ongoing self-assessment of comprehension aligns with the research conducted by Delgado and Salmerón (2022) (34) on the impact of reading media on attention and comprehension when time is limited. The study emphasized the role of visual media in enhancing reading comprehension and strategies. Lastly, research by Burin *et al.*, (2020) (13) supports the idea that metacognitive regulation plays a role in digital text comprehension in e-learning. The literature strongly supports the use of visual media to enhance metacognitive knowledge, monitoring, and control in reading strategies. This study enhances our understanding of how visual resources can be used to support metacognitive aspects of reading, leading to a more comprehensive, self-regulated, and personalized learning experience for readers.

After reviewing the literature, it is clear that there are some research gaps when it comes to combining visual media and metacognitive reading strategies. Previous research suggests a link between these approaches and improved reading comprehension, but there is still a lack of comprehensive data on the magnitude of this improvement among preservice EFL teachers. Therefore, an important research question arises: Can combining metacognitive reading strategies with visual media result in noticeable enhancements in reading comprehension skills? In addition, there is a need for a more thorough understanding of student perspectives on the effectiveness of these strategies. Exploring students' perspectives on the impact of visual media on their reading process could offer valuable insights into the practical use of these strategies. In conclusion, while certain studies indicate that visual media may have a beneficial effect on metacognitive aspects, further research is required to specifically examine the ways in which visual media enhances the development of

metacognitive knowledge, monitoring, and control in reading strategies. Exploring these gaps will greatly improve our knowledge of how visual media and metacognitive reading strategies interact and how they affect reading comprehension.

Given this backdrop, the questions underlying this research are as follows:

1. Does the integration of metacognitive reading strategies with visual media support lead to measurable improvements in reading comprehension skills?
2. What is the perception of students regarding the effectiveness of adopted reading strategies in facilitating pre-while-post reading stage?
3. Does the use of visual media contribute to the development of metacognitive knowledge, monitoring, and control in the context of reading comprehension?

Methodology

Research Design

This investigation utilizes a quasi-experimental design to evaluate the effects of metacognitive reading strategy interventions, aided by visual media, on the English reading comprehension skills of students. The design includes pre-test, intervention, and post-test phases. The pre-test is used to gauge participants' initial comprehension abilities. After the intervention, which includes metacognitive strategies and visual media, a post-test is given to assess any improvements in reading comprehension. In order to understand how effective the intervention is, we use a combination of questionnaires and interviews to gather students' opinions. This research design allows for a thorough evaluation of the intervention's impact by incorporating qualitative data to enhance the findings (35).

Participants

The study included 102 preservice EFL teachers who were students of Linguistics Competence, a communicative language learning course. Linguistics Competence is a language course that aims to improve the language skills of its students in reading, listening, writing, and speaking. The participants were divided into four levels, each corresponding to a year of their study and the Common European Framework of Reference for Languages (CEFR). For instance, the courses Linguistics Competence Initial II, Linguistics

Competence Intermediate II, Linguistics Competence Advanced Intermediate II, and Linguistics Competence Advanced II are taken by students in their first, second, third, and fourth year of the program, respectively. The selection of these participants is important for the research context, as it enables an examination of how the Linguistics Competence course improves the reading skills of future EFL teachers. In addition, the varying language proficiency levels of participants in the four course levels allow for an examination of language learning progression over time and its correlation with performance in the international exam (CAE).

Instruments

Three instruments were utilized in this study: the Reading Comprehension Test (RCT), the Metacognitive Strategy Questionnaire (MSQ), and visual media. Initially, a randomized controlled trial (RCT) was conducted to assess the participants' reading comprehension skills in the area of linguistic competence. The reading texts were chosen from examination papers from the University of Cambridge ESOL examination. These papers cover various levels of English proficiency that align with the four book levels of the course. The reading passages were culled from English textbooks that correspond to different levels of CEFR, ranging from B1 to C1. The first two passages have a narrative and descriptive style, while the last two passages take on an argumentative and explanatory informative structure. For every reading passage, the number of multiple-choice questions varies from 5 to 10 across all course levels. They were chosen for their validation as an internationally recognized standardized test. Salmani-Nodoushan (2009) (36) states that a good test should be practical, reliable, and valid.

Additionally, the researchers administered the MSQ to inquire about how the adopted reading strategies foster learners' engagement, self-efficacy, motivation in reading as well as providing feedback and instructional support at every level of pre-, while-, and post-reading stage. As shown in Table 1, each item in the questionnaire is designed to probe these five variables at each reading stage. The sections provide information on metacognitive strategies in reading comprehension as discussed by Zhang and Seepho (2013) (37).

Table 1: Assessment of Adopted Reading Strategies: Engagement, Self-Efficacy, Motivation, Feedback, and Instructional Support at Pre-, While-, and Post-Reading Stages

Reading stage	Items	Theories	In-text citations
• Pre-reading stage	1-15	Cognitive Engagement Theory	(38)
• While-reading stage		Self-Efficacy Theory	(32)
		Motivation Theory	(39)
• Post-reading stage		Feedback theory	(40)
		Instructional Context and Support theory	(15)

The second part of the questionnaire deals with assessing the effectiveness of educational videos and infographics in facilitating the learning of reading strategies in English. To categorize the questions according to John Flavell's

metacognitive framework (15), which includes metacognitive knowledge, monitoring, and control, we can divide them as follows, as shown in Table 2.

Table 2: Assessment of Metacognitive strategies - Knowledge, Monitoring, and Control

Metacognitive Strategies	Item
Metacognitive knowledge (16)	• The videos associated with strategies before, during and after reading facilitated my learning process. • videos associated with strategies before, during and after reading presented the content clearly. • Infographics • The infographics associated with strategies before, during and after reading facilitated my learning process. • The infographics associated with strategies before, during and after reading presented the content clearly.
Metacognitive monitoring (17)	• The content of the videos was useful to learn how to develop the reading process in English. • The content of the videos was useful to develop autonomy in the reading process in English. • The content of the infographics was useful to learn how to develop the reading process in English. • The content of the infographics was useful to develop autonomy in the reading process in English.
Metacognitive control (18)	• The videos motivated me in the process of learning strategies before, during and after reading the foreign language. • The infographics motivated me in the process of learning strategies before, during and after reading the foreign language.

Visual Media Development

According to Ou *et al.*, (2016) (41), the process of visual media development is as revealed in Figure 2.

Material Development

- Script and Storyboard Creation: Videos were created with carefully crafted scripts and visual storyboards to ensure a clear and effective content flow. The layouts for the infographics

were carefully designed to present information in a clear and organized manner, making it easy for readers to follow.

- **Incorporating Visual and Verbal Elements:** Videos utilize a combination of visual elements, such as animations and text highlights, along with verbal elements like narration and on-screen text, to accommodate various learning styles. Infographics are great tools for conveying information in a clear and efficient manner.
- **Review by experts:** Subject matter experts in English language teaching and instructional design carefully examined drafts of videos and infographics to ensure the accuracy of the content and the effectiveness of the teaching methods.
- **Iterative Feedback and Revision:** The materials went through multiple iterations to improve content clarity, engagement, and pedagogical alignment based on expert feedback.

Pilot Testing Implementation in Classroom

- **Implementation in Classroom:** The materials were first introduced in a controlled classroom setting. Initial engagement and comprehension were assessed using observations and teacher feedback.
- **Student Feedback Collection:** After the implementation, we gathered feedback from students using questionnaires and focus group discussions. This helped us assess the effectiveness of the materials and identify areas for improvement.

Finalization

- **Editing Based on Feedback:** The materials were revised to address the feedback received during the pilot testing phase. The revisions aimed to enhance engagement, clarity, and instructional quality.
- **Final Review by Experts:** The revised materials were carefully reviewed by experts to ensure they effectively met educational objectives.
- **Distribution and Integration into Curriculum:** The completed video and infographic materials were shared with classrooms and incorporated into the standard teaching curriculum.

Intervention Background and Process

The presented intervention, Enhancing Reading Comprehension through Explicit Metacognitive Strategies with Technological Integration, is a rigorous six-week program designed to improve

L2 reading skills. The intervention targets students enrolled in an English Pedagogy program at a Chilean University. The participants are enrolled in five different courses, from Linguistics Competence Initial II to Linguistics Competence Advanced II, ranging from first to fourth year of the program. The aim is to equip students with effective metacognitive reading strategies that are tailored to each stage of the reading process: pre-reading, during-reading, and post-reading.

Each course will implement three metacognitive strategies corresponding to the pre, while and post-stages in a reading task in a two-hour session which will be repeated over six weeks. Besides, each metacognitive strategy will be supported by a technological tool, an infographic or a video. The following is the distribution assigned to each course and the technological tool.

The intervention is executed through a five-stage process, as demonstrated in Figure 3.

1. **Direct Instruction:** Explicitly introduces each strategy, purpose, and application (what the strategy was, and on how, when and why to use it (42). It aims to raise awareness of strategies and develop a metacognitive understanding of reading processes. Each week students concentrated on the three selected- strategy use.
2. **Infographic/Video Explanation:** Teachers use relevant infographics and videos to support strategy explanation to facilitate student engagement and metanalysis of strategies.
3. **Teacher Modeling:** Involves teachers demonstrating strategy use by vocalizing their thought processes while reading. It provides students with practical examples and real-time insights. In class, the teacher explicitly explains the characteristics, usefulness, and applications of using the strategy, why to use it, when and give specific examples.
4. **Collaborative and Individual Practice:** Students collaborate to apply strategies during reading tasks with teacher guidance, practicing with the texts provided. Teachers scaffold struggling students, and students learn to switch strategies when needed.
5. **Evaluation and Expansion:** Students evaluate their strategy usage, fostering metacognitive awareness by self-questioning and performing evaluative discussions after strategy practice. They can also answer checklists of strategies

used, and open-ended questionnaires on reading behaviour, expressing their opinions about the usefulness of particular strategies. Moreover, strategies are extended to new

contexts; students are encouraged to use the most compelling strategy and apply them to new contexts using authentic texts to enhance motivation.

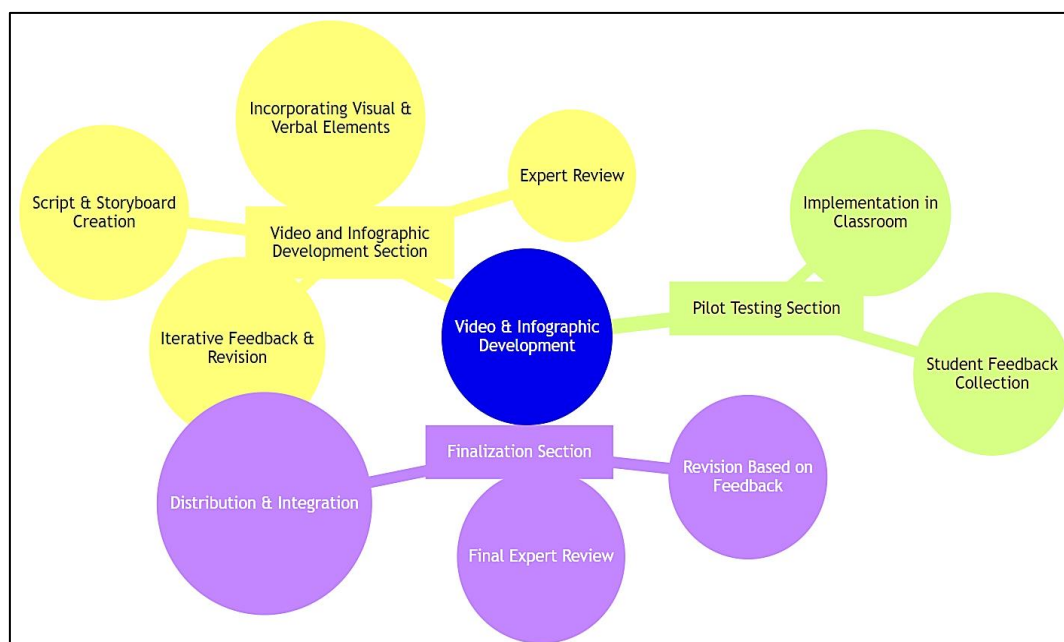


Figure 2: The Visual Media Development Process

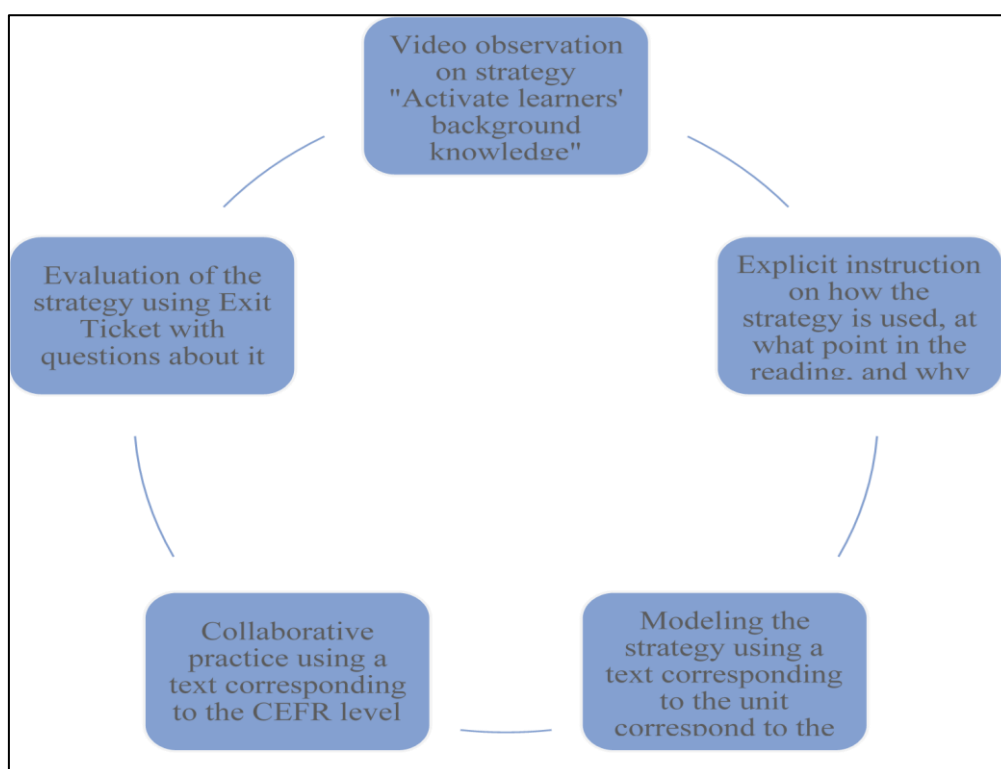


Figure 3: Intervention to Enhance Reading Comprehension Through Explicit Metacognitive Strategies with Technological Integration Adapted from Yapp *et al.*, (2023) (43)

Classes commence with a recap of previous strategies, promoting cumulative learning.

Students are encouraged to apply all learned strategies and select the most effective one for

each task. Discussions on effective reading practices are encouraged.

As detailed in Table 3, the intervention emphasizes a progressive approach to strategies across course levels, ensuring alignment with the Common European Framework Linguistics Competence Initial II, Linguistics Competence Intermediate II, Linguistics Competence Advanced Intermediate II, and Linguistics Competence Advanced II. The program is implemented over six weeks, with different texts corresponding to the students' proficiency levels.

The intervention begins with a pre-reading test in each course according to their level and concludes

with a post-reading test. Teachers maintain treatment fidelity through logbooks, tracking instructional adherence. Weekly teacher training sessions ensure consistent implementation.

This intervention offers a comprehensive, technology-integrated approach to developing metacognitive reading strategies. It targets various stages of reading, incorporates diverse teaching methods, and tailors' strategies to students' proficiency levels. The structured approach and rigorous evaluation process contribute to its potential effectiveness in enhancing reading comprehension.

Table 3: Course Level Connection to Reading Stages, Metacognitive Strategies, and Video/Infographic Task

Level of Course	Reading stages	Metacognitive Reading strategies	Reading strategy tasks
Linguistics Competence Initial II	Pre-reading	Set the purpose (44)	Discussion Questions
	While-reading	Make guesses about unknown words (45)	Synonyms Exercise
	Post-reading	Build interpretations (46)	Written Reflection Exercise
Linguistics Competence Intermediate II	Pre-reading	Activate prior knowledge (47)	Predicting Questions
	While-reading	Understand the text structure (48)	Signalling Word Exercises
	Post-reading	Build main idea summaries (49)	Pair and Share Exercises
Linguistics Competence Advanced Intermediate II	Pre-reading	Previewing (50)	Skimming Questions
	While-reading	Identify important information (51)	Guided Reading Exercises
	Post-reading	Evaluate the text, the author, and form feelings (52)	Debate Exercises
Linguistics Competence Advanced II	Pre-reading	Preview general information and structure (53)	Title Review Exercise:
	While-reading	Identify and focus on key information (51)	Chunking Exercises
	Post-reading	Compensate for failure to understand text (54)	Application to Real-Life Scenario.

Data Collection Technique

To address the first research question, pre- and post-Reading Comprehension Test (RCT) were given before and after the metacognitive reading strategies intervention. The score from pre-test was compared with the score from post-test.

To address the second and third research question, Metacognitive Strategy Questionnaire supported by visual media (MSQ) was administered after the post-test. Before MSQ was given, the students were informed about the purpose of the MSQ that the questionnaire would not affect their score. There was no right or wrong answer and it also did not measure the students' ability in English especially in reading skill. The MSQ only investigated what strategies used by the students. The students were also informed that their response on the MSQ was confidential and thus they would not write their name on the MSQ sheet but their student's number only. The students completed the questionnaire without discussing with others. The questionnaire was written in Spanish to make the students easier to understand the questions and thus could answer them easily.

The post-test and MSQ were administered in a controlled environment similar to the pre-test. Students completed the MSQ immediately after the post-test, ensuring that their responses reflected their most recent experiences with the intervention.

Data Analysis

After data collection, the first step involved conducting an initial data screening. The thorough process was conducted to guarantee the cleanliness and anomaly-free nature of the dataset (55). The researchers ensured that each entry was carefully reviewed to confirm that respondents' answers followed the expected response formats (56). Extreme values, known as outliers, were identified and decisions were made regarding their retention, transformation, or removal based on their impact on the overall analysis. Once the dataset was confirmed to be clean, the analysis moved forward by calculating descriptive statistics using IBM SPSS software version 25. In this phase,

we calculated the distribution of students based on their year of study and their level of linguistic competence. A concise academic analysis was conducted to examine the mean scores of the pre-test and Post Test for reading comprehension. Additionally, a descriptive analysis was performed to graphically represent the distribution of the impact of pre-reading, while-reading, and post-reading strategies, as well as the effect of visual media on metacognitive knowledge, monitoring, and control. The overall validity of the instrument was assessed by calculating the reliability of the adopted items using Cronbach's alpha. To ensure the reliability and robustness of the results, inter-rater reliability was measured to confirm consistency among different raters coding the open-ended responses. Moreover, test-retest reliability was assessed by administering the same test at two different points in time and comparing the results. The findings were carefully analyzed and interpreted in relation to the research questions. In this phase, the empirical data was compared to the theoretical frameworks and expectations mentioned in the literature review. The data analysis protocol for an open-ended questionnaire that investigates the impact of visual media on reading strategies and comprehension goes through several crucial steps. At first, the responses are transcribed or recorded. Afterwards, a thorough analysis is performed to identify common themes, patterns, and variations in the textual data. Text segments are coded and grouped into broader themes (57). Additionally, we hold regular team meetings to ensure consistent coding accuracy.

Results

As indicated in Figure 4, the mean value of students' performance increased significantly from 0.5 (pre-test) to 0.72 (post-test) after the intervention. This finding indicates that interventions involving the facilitation of metacognitive reading strategies supported by visual media can effectively enhance reading comprehension.

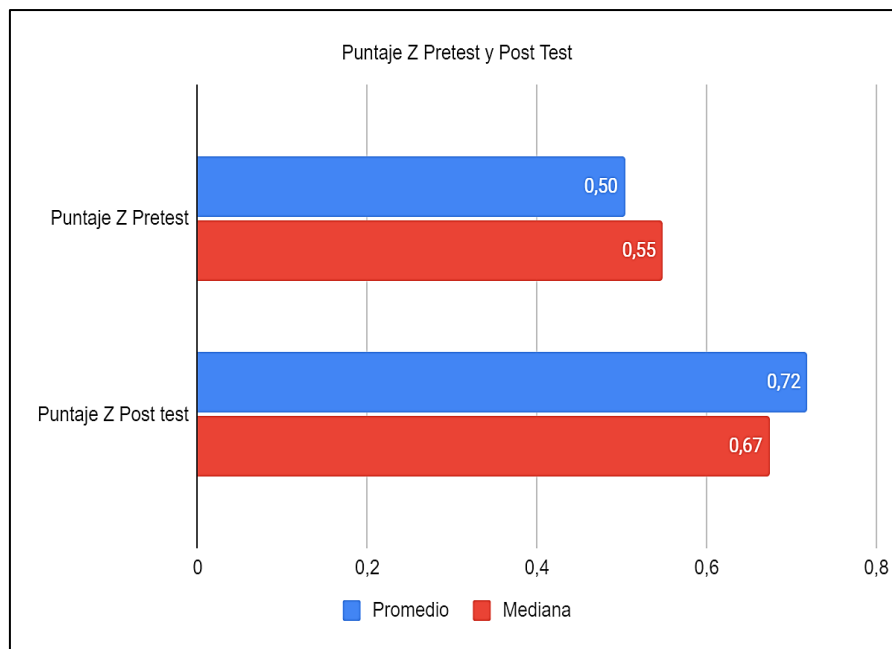


Figure 4: Effect of Intervention on Reading Comprehension: Pre-test and Post-test Mean Performance Scores

According to the survey conducted to assess students' perception of the effectiveness of adopted reading strategies in facilitating the pre-while-post reading stages. As outlined (4), it was

found that the majority of students (over 66%) perceived the adopted reading strategies to be effective in facilitating these stages.

Table 4: Effectiveness of Adopted Reading Strategies in Facilitating Pre-While-Post Reading Stages

Overall level of satisfaction with the adopted reading strategies used for Pre-reading stage	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
The pre-reading strategies engage me with the reading material.	0 0%	0 0%	12 11,8%	50 49%	40 39,2%
When I use pre-reading strategies, I feel more prepared and capable of understanding the reading material.	1 1%	3 3%	16 15,8%	41 40,6%	40 39,6%
Pre-reading strategies that make the reading material seem relevant and interesting motivate me with the text.	2 2%	6 5,9%	25 24,8%	37 36,6%	31 30,7%
Receiving feedback on my pre-reading strategies positively influences my satisfaction with them.	0 0%	3 2,9%	11 10,8%	37 36,3%	51 50%
The effective application of pre-reading strategies, along with the guidance and resources provided by the teacher, contributes to increasing my willingness to read.	1 1%	1 1%	9 8,8%	48 47,1%	43 42,2%

The while-reading strategies engage me with the reading material.	1 1%	2 2%	19 18,8%	40 39,6%	39 38,6%
When I use while-reading strategies, I feel more prepared and capable of understanding the reading material.	1 1%	2 2%	12 11,8%	53 52,0%	34 33,3%
While-reading strategies that make the reading material seem relevant and interesting motivate me with the text.	3 2,9%	3 2,9%	19 18,6%	38 37,3%	39 38,2%
Receiving feedback on my while-reading strategies positively influences my satisfaction with them.	1 1%	1 1%	11 10,8%	48 47,1%	41 40,2%
The effective application of while-reading strategies, along with the guidance and resources provided by the teacher, contributes to increasing my willingness to read.	1 1%	1 1%	9 8,9%	52 51,5%	38 37,6%
The post-reading strategies engage me with the reading material.	1 1%	2 2%	19 18,6%	47 46,1%	33 32,4%
When I use post-reading strategies, I feel more prepared and capable of understanding the reading material.	1 1%	0 0%	15 14,7%	50 49%	36 35,3%
Post-reading strategies that make the reading material seem relevant and interesting motivate me with the text.	0 0%	0 0%	16 15,7%	48 47,1%	38 37,3%
Receiving feedback on my post-reading strategies positively influences my satisfaction with them.	0 0%	1 1%	10 9,8%	48 41,1%	43 42,2%

Based on the study conducted to evaluate the impact of adopting visual media on students' metacognitive knowledge, monitoring, and control of reading comprehension. As illustrated (see Table 5), it was observed that a significant majority

of students (over 64%) perceived visual media as effective in fostering these aspects. This, in turn, was found to improve their performance in the reading comprehension test.

Table 5: Effectiveness of Visual Media in Fostering Metacognitive Knowledge, Monitoring, and Control for Reading Comprehension

	Metacognitive monitoring				
	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Video useful to learn how to develop the reading process in English	0 0%	1 1%	19 18,8%	42 41,6%	39 38,6%
Video was useful to was useful to develop autonomy in the reading process in English	0 0%	3 3%	18 18,2%	40 40,4%	38 38,4%
The content of the infographics was useful to learn how to develop the reading process in English.	0 0%	2 2,1%	20 21,1%	41 43,2%	32 33,7%
The content of the infographics was useful to develop autonomy in the reading process in English	0 0%	2 2,1%	31 32,6%	33 34,7%	29 30,5%
Metacognitive knowledge					
Video presented the content clearly	0 0%	2 2%	17 17%	44 44%	37 37%
Infographic (associated with pre, while, post) presented the content clearly	0 0%	4 4,2%	17 17,5%	46 47,4%	30 30,9%
Videos help to facilitate my learning process	2 2%	4 4%	19 19%	48 48%	27 27%
Infographic helps in facilitating the learning process	0 0%	3 3,1%	21 21,4%	45 45,9%	29 29,6%
Metacognitive control					
Video motivated students in the process of learning pre, while, post reading strategies	0 0%	3 3%	22 22%	42 42%	33 33%
Infographic motivated students in the process of learning pre, while, post reading strategies	0 0%	2 2,1%	27 28,1%	36 37,5%	31 32,3%

In the results section of the thematic analysis conducted on the responses of 76 participants regarding the influence of visual media on their reading strategies and metacognitive reading strategies, it was found that eight common themes emerged. These themes encapsulate the varied impacts that visual media such as videos and infographics have on both the reading process and the participants' awareness and control over their reading strategies. The analysis reveals a multifaceted influence of visual media, highlighting

its role in enhancing concentration and motivation, catering to visual learning preferences, improving the understanding and application of complex ideas, aiding memory retention, activating prior knowledge, contextualizing content, identifying personal strengths and weaknesses in reading, and fostering continuous improvement and practice in reading strategies. This comprehensive understanding of the themes underscores the significant role visual media plays in shaping and

optimizing reading strategies and metacognitive approaches among learners.

Discussion

The results of the current study are significant in addressing the research objective of determining whether the intervention of three reading stages with the support of visual media leads to improvements in reading comprehension skills. The results show a notable improvement in students' reading comprehension scores, which increased from 0.5 to 0.72 following the intervention. This improvement builds upon the findings of previous studies in the field, including the research conducted by Astri and Wahab (2018) (22) and Campoverde López (2020) (23). Campoverde López's (2018, 22) study showcased a significant increase in students' reading comprehension scores, demonstrating the efficacy of utilizing teaching materials tailored to diverse learning styles, such as visual media. The importance of customizing teaching methods to accommodate different learning styles is highlighted, which was a fundamental aspect of the intervention strategy utilized in this study. In line with Campoverde López's (2018) (22) research, it is evident that the use of graphic organizers significantly improves reading comprehension scores. This supports the idea that visual media are effective in enhancing reading comprehension skill.

We conducted a study to evaluate how students perceive the effectiveness of different reading strategies during the pre-reading, while-reading, and post-reading stages. According to the study's findings, most students feel that these strategies boost their confidence, motivation, and provide helpful feedback and support throughout the process, resulting in better reading performance. During the pre-reading stage, students found it helpful to use strategies that allowed them to actively interact with the text. Using reading activities like anticipation exercises and predicting questions, students were able to increase their motivation and self-efficacy while gaining a thorough understanding of the theme and structure of the text. As a result, a more targeted reading approach was adopted in later stages. The findings support the use of a K-W-L organizer (25) and pre-teaching vocabulary (26). They also align with Vygotsky's sociocultural theory, which highlights the link between learning and prior

experiences (27). During the while-reading stage, students found value in exercises that emphasized synonyms for inferring meanings and signaling words for comprehending text structure. The synonym exercises improved their vocabulary and comprehension, boosting their confidence in dealing with complex terms. The exercises on signaling words helped students effectively understand the organization and main points of the text. The implementation of these strategies resulted in notable enhancements in students' self-efficacy and motivation, offering focused instructional assistance. This finding supports the advantages of using graphic organizers (25) and self-questioning techniques (28), emphasizing the important role of this stage in promoting successful reading. Students found written reflection exercises and debate exercises to be very helpful in the post-reading stage. Students' written reflections enhanced their personal interpretations and deepened their understanding of the texts. Engaging in debates fostered critical analysis and discussion, leading to a comprehensive grasp of the material. These strategies enhanced students' confidence and drive while also offering teachers a means to evaluate their understanding and critical thinking abilities. The findings support the use of post-reading strategies such as summarizing and question-generation, highlighting the significance of varied and dynamic teaching approaches in improving comprehension and critical thinking abilities. Our research highlights the importance of using diverse and engaging reading strategies at every stage of the reading process. Integrating these strategies in different phases of reading has been found to greatly improve students' reading performance, motivation, and self-efficacy. This highlights the importance of using dynamic and multifaceted approaches in reading instruction (31).

This study investigated the impact of integrating visual media, such as videos and infographics, into reading strategies on the development of metacognitive knowledge, monitoring, and control strategies to enhance reading comprehension. The results revealed that incorporation of visual media significantly contributes to the development of metacognitive aspects in reading, with over 64% of respondents reporting positive effects (content, facilitation of learning and reading process as well

as motivation to read). Educational research has recently highlighted the substantial positive effects of integrating visual media on metacognitive aspects of reading, aligning with existing literature that emphasizes the role of multimedia resources (32). Participants in the study recognized the value of visual media in accommodating diverse learning styles and needs. This observation resonates with research on metacognitive inference activity supported by visualizing eye-movement graphs during critical reading (33) and cognitive effort in text processing and reading comprehension in both print and tablet formats (34). In terms of metacognitive monitoring, the study's findings align with research by Delgado and Salmerón (2022) (34), which explored the impact of reading media on readers' attention and comprehension under time constraints, emphasizing the beneficial role of visual media in facilitating metacognitive monitoring during reading. Additionally, the study highlighted that visual media actively contribute to the improvement of reading comprehension and strategies through metacognitive control, in line with research on metacognitive regulation in digital text comprehension in e-learning contexts (13). This underscores the importance of metacognitive control strategies when utilizing digital resources. In conclusion, this study affirms the effectiveness of incorporating visual media to facilitate metacognitive knowledge, monitoring, and control strategies, ultimately enhancing reading comprehension. The positive perceptions of participants align with existing literature, highlighting the value of videos and infographics in promoting metacognitive aspects of reading and improving reading comprehension. This reinforces the notion that visual media effectively support metacognitive strategies that boost reading comprehension.

The recent study highlighting the significant impact of integrating visual media into reading strategies has profound pedagogical implications for English teacher training programs, particularly in addressing the challenges in the disciplinary standard faced by pre-service English teachers. Incorporating visual media as a core component of reading strategies can be a game-changer in such programs. Ijiga (2014) (10) and Pulukuri and Abrams (2021) (12) demonstrate the effectiveness of visual aids in enhancing comprehension skills, which is critical for pre-service teachers preparing

for international exams. The study showed a notable improvement in reading comprehension scores post-intervention, suggesting that similar strategies could be beneficial in teacher training programs. By integrating visual media in pre-reading, while-reading, and post-reading phases, these programs can help pre-service teachers develop a deeper understanding of texts, as shown by the increase in comprehension scores from a mean value of 0.5 to 0.72. The pre-reading strategies, as highlighted by Menacho López (2021) (58), can involve using infographics and video summaries to activate prior knowledge and set a context for new material. During the reading phase, embedding visual cues and videos within the text can maintain engagement and focus, an approach supported by Fukui *et al.*, (2016) (59). Post-reading strategies, involving creating visual representations of the text, as suggested by Dunn (2021) (60), can aid in consolidating and reflecting on the information. Moreover, the enhancement of metacognitive skills through the use of visual media, as indicated by over 64% of participants in the study, aligns with Burin *et al.*, (2020) (13) cognitive theory of multimedia learning. Incorporating these strategies in teacher training programs could significantly improve metacognitive monitoring and control, crucial skills for understanding and teaching reading comprehension effectively. In sum, the pedagogical implementation of these findings could revolutionize the way reading comprehension is taught to pre-service English teachers. By focusing on multimodal teaching strategies that include visual media, teacher training programs can better prepare their candidates for success in reading comprehension test in international English proficiency exams, ultimately enhancing their chances of reaching the C1 level of English required to qualify as a teacher of English in Chile. The findings of this study have significant practical implications for improving student engagement and teaching methodologies in reading instruction. By utilizing visual media during pre-reading, while-reading, and post-reading stages, educators can cater to diverse learning styles, thereby increasing student engagement (22). For instance, employing K-W-L organizers and pre-teaching vocabulary can activate prior knowledge and set the context for new material, leading to more focused reading efforts (26). During the while-

reading stage, exercises emphasizing synonyms and signaling words can enhance vocabulary and comprehension, boosting students' confidence in handling complex texts (28). Post-reading strategies, such as written reflections and debates, foster critical analysis and deeper understanding, further motivating students and providing valuable feedback for teachers (31). Moreover, the development of metacognitive knowledge and strategies through the incorporation of visual media supports better monitoring and control during reading, which is essential for comprehensive text understanding (33). Therefore, adopting these evidence-based strategies can lead to more effective reading instruction, ultimately enhancing student engagement and learning outcomes.

Conclusion

The results of the research highlight the effectiveness of using metacognitive reading strategies, along with visual media, to improve English reading comprehension for preservice EFL teachers. There was a significant improvement in reading comprehension, as the average scores increased from 0.5 to 0.72 after the intervention. The improvement can be credited to the successful incorporation of metacognitive strategies and visual aids like videos and infographics. These tools improved understanding and were well-received by students at various reading levels. Nevertheless, the study's quasi-experimental design and the specific context of preservice EFL teachers restrict the applicability of the findings. Firstly, the lack of randomization may introduce selection bias, as participants were pre-service EFL teachers from specific course levels, which might not represent the broader student population. Additionally, the reliance on self-reported data from the Metacognitive Strategy Questionnaire (MSQ) could lead to response bias, as students might provide socially desirable answers despite assurances of confidentiality. Further research can build upon these findings by examining various educational settings and including a wider range of participants to confirm the study's efficacy. In addition, longitudinal studies can offer more in-depth understanding of the long-term effects of these strategies. This study highlights the effectiveness of using metacognitive strategies and visual media in EFL teaching, which can greatly

improve reading comprehension skills in similar educational settings.

Abbreviations

Nil.

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Nil.

Author Contributions

All authors have equally contributed.

Conflicts of Interest

The authors declare no conflict of interest.

Ethics Approval

Ethical clearance for this study was based on the provision of informed consent from all participants, ensuring their voluntary participation and understanding of the research's purpose and procedures.

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References

1. Toprak E, Almacioğlu G. Three reading phases and their applications in the teaching of English as a foreign language in reading classes with young learners. *Journal of language and Linguistic Studies*. 2009;5(1):36.
2. Ajideh P. Schema theory-based pre-reading tasks: A neglected essential in the ESL reading class. *The reading matrix*. 2003;3(1):1-14.
3. Magliano JP, Millis KK, RSAT Development Team, Levinstein I, Boonthum C. Assessing comprehension during reading with the Reading Strategy Assessment Tool (RSAT). *Metacognition and learning*. 2011;6:131-54.
4. Rooney E. The Impact of Drawing Post-Reading on Third Grade Reading Comprehension. 2020; *Student Research Submissions*; 365.
5. Yawiloeng R. Using instructional scaffolding and multimodal texts to enhance reading comprehension: Perceptions and attitudes of EFL students. *Journal of Language and Linguistic Studies*. 2022;18(2):877-94.
6. Tercanlioglu L. Pre-service teachers as readers and future teachers of EFL reading. *Tesl-ej*. 2001;5(3):1-17.
7. Liang W, Fung D. Fostering critical thinking in English-as-a-second-language classrooms: Challenges and opportunities. *Thinking Skills and Creativity*. 2021;39:100769.
8. Çubukcu F. How To Enhance Reading Comprehension Through Metacognitive Strategies. *Journal of International Social Research*. 2008;1(2): 83-93.
9. Eilers LH, Pinkley C. Metacognitive strategies help students to comprehend all text. *Reading improvement*. 2006;43(1):13-30.
10. Ijiga PA. Effect of modes of video presentation of metacognitive strategies on secondary school

- students' achievement in reading comprehension in North Central Nigeria. *Journal of Education and Vocational Research*. 2014;5(4):216–27.
11. Wulfemeyer J. Modeling metacognition and providing background knowledge via guided reading videos. *Journal of College Reading and Learning*. 2019;49(2):75–88.
 12. Pulukuri S, Abrams B. Improving learning outcomes and metacognitive monitoring: Replacing traditional textbook readings with question-embedded videos. *Journal of Chemical Education*. 2021;98(7):2156–66.
 13. Burin DI, Gonzalez FM, Barreyro JP, Injoque-Ricle I. Metacognitive regulation contributes to digital text comprehension in E-learning. *Metacognition and learning*. 2020;15(3):391–410.
 14. Meniado JC. Metacognitive Reading Strategies, Motivation, and Reading Comprehension Performance of Saudi EFL Students. *English Language Teaching*. 2016;9(3):117–29.
 15. Flavell JH. Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American psychologist*. 1979;34(10):906.
 16. Shang HF. Online metacognitive strategies, hypermedia annotations, and motivation on hypertext comprehension. *Journal of Educational Technology & Society*. 2016;19(3):321–34.
 17. Norman E, Furnes B. The relationship between metacognitive experiences and learning: Is there a difference between digital and non-digital study media? *Computers in Human Behavior*. 2016;54:301–9.
 18. Kramarski B, Friedman S. Solicited versus unsolicited metacognitive prompts for fostering mathematical problem solving using multimedia. *Journal of Educational Computing Research*. 2014;50(3):285–314.
 19. Paris SG, Cross DR, Lipson MY. Informed strategies for learning: A program to improve children's reading awareness and comprehension. *Journal of Educational psychology*. 1984;76(6):1239.
 20. Lei PL, Sun CT, Lin SS, Huang TK. Effect of metacognitive strategies and verbal-imagery cognitive style on biology-based video search and learning performance. *Computers & Education*. 2015;87:326–39.
 21. Lin L, Lee J, Robertson T. Reading while watching video: The effect of video content on reading comprehension and media multitasking ability. *Journal of Educational Computing Research*. 2011;45(2):183–201.
 22. Astri Z, Wahab I. The Effect Of Reading Teaching Material For Different Learning Styles In Improving Students' reading Comprehension. *Jurnal Bahasa Lingua Scientia*. 2018;10(2):215–30.
 23. Campoverde López JS. Reading comprehension through the use of graphic organizers. 2020; 6(4):14–46.
 24. Usman H. Increasing Reading Comprehension Ability through Visualizing Media of 4th Grader Students at Labschool Primary School Setiabudi South Jakarta. *American Journal of Educational Research*. 2016;4(18):1265–70.
 25. Torres DB. Effectiveness and students' perception of the use of pre-reading strategies and summaries: A case study of adult EFL students in a reading comprehension course. *Revista de Linguas Modernas*. 2017;(27):285–310.
 26. Chowdhury TA, Ara A. Pre-teaching Vocabulary in Teaching Reading Skill: A Hindrance to Learner Autonomy? *Indonesian TESOL Journal*. 2021;3(2):123–32.
 27. Eun B. From learning to development: A sociocultural approach to instruction. *Cambridge Journal of Education*. 2010;40(4):401–18.
 28. Joseph LM, Alber-Morgan S, Cullen J, Rouse C. The effects of self-questioning on reading comprehension: A literature review. *Reading & Writing Quarterly*. 2016;32(2):152–73.
 29. Mustofa HAB, Apriliaswati R, Salam U. Improving Students Reading Comprehension on Hortatory Exposition Text Through Reciprocal Teaching Strategy. *Jurnal Pendidikan dan Pembelajaran Untan*. 2013 Jan 19;2(1):1–15.
 30. Rosenshine B, Meister C, Chapman S. Teaching students to generate questions: A review of the intervention studies. *Review of educational research*. 1996;66(2):181–221.
 31. Srilakshmi M. Effective Reading Strategies to Teach Prose: An Empirical Study. *IUP Journal of English Studies*. 2019;14(2):116–121.
 32. Chen F, Sakyi A, Cui Y. Linking student, home, and school factors to reading achievement: the mediating role of reading self-efficacy. *Educational Psychology*. 2021;41(10):1260–79.
 33. Hashimoto T, Hayashi Y, Seta K. Metacognitive inference activity support by visualizing eye-movement graph during critical reading. *Procedia Computer Science*. 2019;159:1995–2004.
 34. Delgado P, Salmerón L. Cognitive effort in text processing and reading comprehension in print and on tablet: an eye-tracking study. *Discourse Processes*. 2022;59(4):237–74.
 35. Schifferdecker KE, Reed VA. Using mixed methods research in medical education: basic guidelines for researchers. *Medical education*. 2009;43(7):637–44.
 36. Salmani-Nodoushan MA. Measurement Theory in Language Testing: Past Traditions and Current Trends. *Journal on Educational Psychology*. 2009;3(2):1–12.
 37. Zhang L, Seepho S. Metacognitive strategy use and academic reading achievement: insights from a Chinese context. *Electronic Journal of Foreign Language Teaching*. 2013;10(1):54–69.
 38. Wigfield A, Guthrie JT, Perencevich KC, Taboada A, Klauda SL, McRae A, *et al.*, Role of reading engagement in mediating effects of reading comprehension instruction on reading outcomes. *Psychology in the Schools*. 2008;45(5):432–45.
 39. Salikin H, Bin-Tahir SZ, Kusumaningputri R, Yuliandari DP. The Indonesian EFL Learners' Motivation in Reading. *English Language Teaching*. 2017;10(5):81–90.
 40. Serván PGG. Formative Feedback in Reading Comprehension. *Asian Journal of Education and Social Studies*. 2023;38(1):1–8.
 41. Ou C, Goel AK, Joyner DA, Haynes DF. Designing videos with pedagogical strategies: Online students' perceptions of their effectiveness. In: *Proceedings of the Third (2016) ACM Conference on Learning@ Scale*. 2016 Apr; p. 141–144.

42. Veenman MV, Van Hout-Wolters BH, Afflerbach P. Metacognition and learning: Conceptual and methodological considerations. *Metacognition and learning*. 2006;1:3–14.
43. Yapp D, de Graaff R, van den Bergh H. Effects of reading strategy instruction in English as a second language on students' academic reading comprehension. *Language Teaching Research*. 2023;27(6):1456–79.
44. Jones MB. The effect of specificity of reading purposes on children's reading achievement. *Journal of Reading Behavior*. 1976;8(4):405–13.
45. Bounab S, Khaldi H. The Importance of the contextual-guessing strategy in facilitating the students' reading comprehension. Oum-El-Bouaghi: University of Oum-El-Bouaghi; 2014.
46. Assiri AI, Siddiqui A. Interpretive Reading as a Strategy to Construct Meaning in EFL Reading Comprehension: A Case Study at King Khalid University. *Arab World English Journal*. 2020;11(2):411–9.
47. Abdelaal NM, Sase AS. Relationship between Prior Knowledge and Reading Comprehension. *Advances in Language and Literary Studies*. 2014;5(6):125–31.
48. Amiri F, Zainal Z, Samad AA. Effects of text structure on the Iranian students' reading comprehension performance. *Procedia-Social and Behavioral Sciences*. 2012;66:402–9.
49. Tavares RR. The effects of main idea identification instruction on EFL students' Reading comprehension and summary writing. 1991.p.1-181
50. Iklima PS, Yunus M, Sholihah FA. The effect of previewing text on freshmen reading comprehension skill. *Jurnal Penelitian Pendidikan dan Pembelajaran*. 2020;15:26.
51. Baldonado AA, Svetina D, Gorin J. Using necessary information to identify item dependence in passage-based reading comprehension tests. *Applied Measurement in Education*. 2015;28(3):202–18.
52. Peshkova N, Anishchenko A, Davletova YA, Moiseeva A, Titlova A. Text comprehension as a process of emotional feeling. *Modern Journal of Language Teaching Methods (MJLTM)*. 2018;8(7):76–86.
53. Nurfarida S. The effect of using previewing strategy toward reading comprehension of the second year students at State Senior High School (SMAN) 12 Pekanbaru [Doctoral dissertation]. Universitas Islam Negeri Sultan Syarif Kasim Riau; 2013. p. 1-83.
54. Pasumbu HA, Macora YD. Compensation as a strategy in teaching reading to EFL junior high school students. *Sintuwu Maroso Journal of English Teaching*. 2020;4(1):39–42.
55. Odom LR, Henson RK. Data Screening: Essential Techniques for Data Review and Preparation. Paper presented at the Annual Meeting of the Southwest Educational Research Association; 2002 Feb 14-16; Austin, TX. 37 p.
56. Meijer RR, Niessen ASM, Tendeiro JN. A practical guide to check the consistency of item response patterns in clinical research through person-fit statistics: Examples and a computer program. *Assessment*. 2016;23(1):52–62.
57. Boyatzis RE. Transforming qualitative information: Thematic analysis and code development. Thousand Oaks, CA: Sage Publications; 1998. p. 1-184.
58. Menacho López LA. Estrategias colaborativas: aprendizaje compartido para el desarrollo de la comprensión lectora en estudiantes de educación primaria. *Praxis Educativa*. 2021;25(3):243–58.
59. Fukui Y, Nakata T, Kato T. Effect of Visual Emphasis on Important Parts of Texts. In Springer; 2016. p. 519–26.
60. Dunn LAC. Using elements of a screenplay to promote visualization and increase reading comprehension in secondary students with high incidence disabilities. *Reading & Writing Quarterly*. 2021;37(5):395–412.