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iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577



The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

Enhancing Comprehension through Visualization and Inference

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Received: 06 October 2024

Revised: 09 November 2024

Accepted: 12 November 2024

Available Online: 12 November 2024

Volume III (2024), Issue 4, P-ISSN – 2984-7567; E-ISSN - 2945-3577

Abstract

Aim: The study explored how comprehension is enhanced through visualization and inference.

Methodology: This study used a descriptive design using a structured survey questionnaire. The study consists of 80 Grade 7 learners from Don Vicente Rama Memorial National High School in Basak Pardo, Cebu City.

Results: The learners practiced visualization techniques in understanding the main ideas and details in a text ($\bar{X}=3.76$); moderately practiced inferencing techniques in identifying implied meanings and context within texts ($\bar{X}=3.49$); and practiced the combination of visualization and inference techniques in understanding unclear or vague information ($\bar{X}=3.60$).

Conclusion: Visualization and inferencing techniques notably enhance learners' reading comprehension and engagement. Visualization helps students grasp main ideas and details, especially through teacher-led examples and peer sharing. Similarly, inferencing aids in interpreting implied meanings and connecting new information with prior knowledge. However, the moderate practice of some strategies indicates areas for improvement, particularly in using contextual clues for vocabulary development.

Keywords: visualization, inference, comprehension

INTRODUCTION

Reading is a foundational component in educational systems, making the development of reading skills essential. Effective strategies for reading are critical in achieving this improvement, as they can significantly enhance students' comprehension abilities. According to McNamara (2021), reading comprehension strategies are deliberate cognitive or behavioral actions employed within specific contexts to enhance understanding. These strategies are designed to help readers interpret, analyze, and retain information, aiming to improve various aspects of reading comprehension.

Edge (2020) describes reading comprehension strategies as methods that prompt students to leverage prior knowledge, experiences, critical thinking, and evaluation skills, helping them apply their understanding across different reading situations. Medina (2017) also defined reading comprehension strategies as a complex process involving interactions between the reader and the text, using multiple skills. These strategies vary in effectiveness; certain strategies may work better for some students or with particular types of reading materials, while others may be more suitable for different students or texts. To enhance students' reading comprehension, teachers should consider students' skill levels, group dynamics, age, gender, cultural background, and the type of text involved to determine the best approach. Research indicates that the effectiveness of reading comprehension is directly linked to the strategies employed by readers (McNamara, 2021; Bachman & Palmer, 2019; Bachman, 2018; Connolly, 2017; Blachowicz & Ogle, 2018; Roe et al., 2021). For students with limited background knowledge and weaker reading skills, using targeted strategies is especially crucial. Employing strategies to build and construct meaning before, during, and after reading enables readers to connect current information with prior knowledge, enriching their comprehension (Blachowicz & Ogle, 2018). Two significant comprehension strategies - visualizing and inferencing have proven valuable in fostering students' engagement and interpretation of reading materials.



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The visualization strategy encourages students to create mental images of their reading, enhancing comprehension by linking words to mental pictures. Visualization aids students in grasping the essence of the text, allowing them to experience it on a deeper level. Goudvis and Harvey (2020) highlight that visualizing helps students draw connections, speculate on what might happen, and immerse themselves in the text. Through visualization, students are motivated to engage actively, enriching their vocabulary and building a stronger foundation for comprehension. Teachers can assess students' understanding as they discuss and share their mental images, clarifying and reinforcing vocabulary and concepts. Studies by Swan et al. (2018), Astani (2020), and Saraswati and Wicaksono (2021) have all noted improved reading comprehension outcomes when students utilize visualization as part of the reading process.

To effectively implement visualization, teachers can use a gradual release model (Goudvis & Harvey, 2020). This involves teacher modeling, guided practice, and independent practice. In teacher modeling, the teacher reads a passage and sketches their mental imagery, demonstrating how to translate text into visualization. Next, students practice together with the teacher's support, gradually transitioning to independent visualization. This structured approach gives students the confidence and skills to engage with texts independently and supports comprehension development at each stage. Visualization thus becomes a bridge, helping students move from passive consumption of information to active engagement, fostering both comprehension and a love for reading (Gorman & Eastman, 2021; Hibbin & Rankin-Erickson, 2020).

Inferencing, often called "reading between the lines," is another critical strategy in reading comprehension. It requires readers to use clues from the text along with their prior knowledge to draw conclusions. Inferencing encourages students to interpret implied meanings, resolve ambiguities, and deepen their understanding beyond the surface. Research by Pearson and Stephens (2018) suggests that comprehension is enhanced when readers can infer meaning rather than solely rely on explicit text. Local inferencing strategies—such as clarifying ambiguous references, interpreting context clues, and analyzing cohesive ties—are essential for constructing meaning within sentences and paragraphs.

Cognitive psychology has long explored how readers use inference to interact with texts (Rumelhart, 2017; Anderson & Pearson, 2017). The schema theory explains that readers bring their background knowledge to bear on the text, filling in gaps and expanding the meaning. Strategic readers leverage a combination of conditional, declarative, and procedural knowledge (Paris, et al., 2017) to navigate texts effectively. This makes inferencing particularly beneficial when students encounter challenging material, enabling them to link new information to what they already know and make educated guesses about unfamiliar content.

Applying these strategies in real-world settings aligns with the natural demands of academic and workplace reading. It is vital to teach students to manage complex texts involving intricate relationships, subtle interactions, and context-dependent vocabulary. Such texts require a nuanced comprehension approach, and using strategies like inferencing helps readers derive value beyond literal meaning. By visualizing relationships within a text and making inferences about underlying meanings, readers improve their ability to handle sophisticated materials with ease.

Inferencing also supports critical thinking by engaging students in hypothesis formation and problem-solving. For example, Zwiers (2020) compares inferencing to a chemical reaction in which personal knowledge combines with text clues to create new meaning. Inferencing is not merely about comprehension but also about building interpretive skills, as students connect the dots, form conclusions, and relate their understanding to broader contexts. Through inferencing, teachers guide students in moving from literal comprehension to more analytical, purposeful reading, equipping them for both academic and everyday challenges.

Despite students' exposure to visual and interactive media, developing visualization and inferencing skills remains challenging. Most students are passive consumers of visual information which does not necessarily translate to skilled visualizing or inferring while reading (Manning, 2020). Teachers, therefore, must actively model and practice these strategies with students, particularly from a young age, to embed visualization and inferencing as integral comprehension skills.

While the importance of reading comprehension is well recognized, there remains a significant gap in successfully integrating visualization and inferencing strategies in elementary and secondary classrooms. Many teachers find it challenging to apply these techniques consistently in day-to-day lessons, especially in diverse classrooms where students have varying reading skills and learning styles.

Although there is ample research on visualization and inferencing as separate strategies, studies examining their combined effect on reading comprehension are scarce. This limited perspective makes it difficult to understand how these strategies might work together to enhance understanding. There is also a shortage of structured



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approaches to help students, particularly those who struggle with reading, develop skills in both visualization and inferencing.

This study aimed to bridge these gaps by exploring how students practice a range of visualization and inferencing strategies and how using these techniques together can help them better interpret unclear or complex information.

Objectives

This study explored how comprehension is enhanced through visualization and inference.

It specifically answered the following questions:

1. To what extent do learners apply visualization to understand the main ideas and details in a text?
2. To what extent do learners apply inferencing to understand implied meanings and context-based information in a text?
3. To what extent do learners combine visualization and inference skills to understand unclear information?

METHODS

Research Design

This study utilized a descriptive research design, which, according to McCombes (2019), aims to explain current issues or challenges by gathering data that provides a comprehensive understanding of the situation. In its common form, descriptive research focuses on detailing the characteristics and behaviors of a specific sample population. This approach is particularly effective for collecting information that can help generate hypotheses and suggest potential relationships between variables. This study described how comprehension is enhanced through visualization and inference.

Population and Sampling

The population of the study consists of Grade 7 learners from Don Vicente Rama Memorial National High School in Basak Pardo, Cebu City. The study selected two sections, each comprising 40 learners, resulting in a total of 80 respondents.

Instrument

The primary instrument used in this study is a structured survey questionnaire. The questionnaire was pretested to test its reliability.

Data Collection

The researcher sought approval from the school division Superintendent and coordinated with the School Principal. Upon approval, the researcher set a schedule to distribute the survey questionnaire to the learner respondents. The section adviser was assigned to collect the answered questionnaires from the learners. After a week, the researcher collected the completed questionnaires.

Treatment of Data

The 5-point Likert scale was utilized for rating the responses in the survey questionnaire. "Extremely practiced" was rated 5, "Practiced" was rated 4, "Moderately practiced" was rated 3, "Slightly practiced" was rated 2, and "Not practiced" was rated 1. Meanwhile, descriptive statistics, specifically the weighted mean, were employed in the analysis and interpretation of data. The range of mean values and descriptive interpretation are as follows: 4.51-5.00 (Extremely practiced), 3.51-4.50 (Practiced), 2.51-3.50 (Moderately practiced), 1.51-2.50 (Slightly practiced), and 1.00-1.50 (Not practiced).

Ethical Considerations

The researcher ensured that all research protocols involving ethics in research were complied with for the protection of all learners and institution involved in the conduct of the study. The researcher assured that the learners' consent was considered for their inclusion in the study. Furthermore, learners' participation in the study did not have a bearing on their class performance. Within the scope of the study, the researcher assured that there was negligible or minimal risk in the participation of the learners in the research study. The respondents were free to skip



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specific questions if they felt discomfort or inconvenience or if they believed they did not have the proper authority to answer such questions in the survey questionnaire. Additionally, the respondents were not given incentives or monetary compensation for their participation in the study.

RESULTS and DISCUSSION

Visualization techniques or learners

Table 1 presents the visualization techniques used by learners to understand the main ideas and details in a text. Results show that learners actively practiced visualization techniques to understand the main ideas and details in texts, as indicated by the aggregate mean of 3.76. This data suggests that visualization strategies are beneficial for understanding texts, where learners can be able to grasp key ideas and details. Encouraging the use of visualization techniques in the classroom can enhance comprehension and engagement with reading materials.

Creating images from different kinds of texts received the highest mean (4.58), categorized as extremely practiced. This implies that learners find visualizing beneficial across various text types, helping them comprehend diverse subjects. The frequent practice of this technique shows that it enhances learners' understanding and deepens their learning outcomes.

Focusing on important details in the text recorded a mean of 4.57, also rated as extremely practiced. This indicates that learners prioritize key details to grasp main ideas, demonstrating their ability to distinguish relevant information from less critical parts. This technique is important for reading comprehension as attention to detail can support learners' understanding.

These findings support the insights of Goudvis and Harvey (2020) on visualization strategies. In their work, Goudvis and Harvey stressed that visualization enhances students' comprehension by encouraging them to create mental images of what they read, which also boosts engagement and motivation to explore the text further. They emphasize that visualization strategies involve actively constructing mental images, which enhances students' comprehension by allowing them to focus on key details in the text.

Another noteworthy strategy is *starting with the teacher's examples of visualizing*, which recorded a mean of 4.55, indicating that is extremely practiced. This means that teacher-led visualization activities are highly effective, providing a solid foundation for learners to apply these techniques independently. It signifies the vital role of the teacher in guiding the learners in developing these skills. It can be said that modeling visual strategies can significantly boost students' confidence. This validates the study of Swan et al. (2018) emphasizing the importance of teacher-led visualization activities. Their research demonstrated that teachers who model visual strategies, such as creating mental imagery and drawing, provide students with a structured approach to understanding and applying visualization independently.

With a mean of 3.84, learners practice *sharing visual images with classmates*. This visualization technique promotes collaborative learning, allowing students to gain insights from their peers' interpretations. Sharing of diverse perspectives can make the learning process more enjoyable and effective, thus enhancing comprehension. This is similar to the work of Saraswati and Wicaksono (2021), who explored the use of visualization strategies to improve students' reading comprehension achievement. In Saraswati and Wicaksono's (2021) study, students who engaged in visualizing text and shared their mental images with classmates showed improvement in comprehension.

The technique of *connecting descriptions in the text to pictures in the mind* is actively practiced by learners, with a recorded mean of 3.71. This manifests that learners regularly create mental representations of text descriptions. This practice makes the content more relatable and memorable, thus, strengthening comprehension.

With a mean of 3.54, learners practice *picturing how characters act in the story and predicting their actions*. This finding suggests that learners engage in visualizing and anticipating character actions. This active engagement with the text encourages students to think ahead about story developments, enhancing their understanding. These data corroborate the study of Harvey and Goudvis (2019). Their work emphasizes the importance of visualization in enhancing comprehension by maximizing the many potentials of visualization techniques.

Creating mental images while reading recorded a mean of 3.52, indicating that this technique is regularly practiced. It implies that learners are turning text into scenarios they can visualize and remember. It shows that mental imagery helps learners relate to and retain information.



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Table 1
Learner's use of visualization techniques in understanding the main ideas and details in a text

Visualization Techniques	Weighted Mean	Descriptive Interpretation
1. Creating mental images while reading helps in understanding what is happening.	3.52	Practiced
2. Thinking about what might happen next in the story based on the reading is a common practice.	3.41	Moderately Practiced
3. Focusing on important details in the text allows for a better grasp of the main ideas.	4.57	Extremely Practiced
4. Connecting descriptions in the text to pictures seen in the mind enhances comprehension.	3.71	Practiced
5. Sketching simple drawings can effectively represent visualizations from the text.	3.50	Moderately Practiced
6. Labeling drawings with words makes ideas clearer.	2.90	Moderately Practiced
7. Picturing how characters act in the story and predicting their actions is helpful.	3.54	Practiced
8. Sharing visual images with classmates provides an opportunity to receive feedback and ideas.	3.84	Practiced
9. Using mental pictures aids in learning new words more effectively.	3.48	Moderately Practiced
10. Reviewing drawings and making changes can lead to a clearer understanding of the text.	3.51	Practiced
11. Starting with the teacher's examples of visualizing is beneficial before attempting it independently.	4.55	Extremely Practiced
12. Practicing the creation of images from different kinds of texts improves overall understanding.	4.58	Extremely Practiced
Aggregate Mean	3.76	Practiced

Legend:

Mean	Descriptive Interpretation
4.51 – 5.00	Extremely Practiced
3.51 – 4.50	Practiced
2.51 – 3.50	Moderately Practiced
1.51 – 2.50	Slightly Practiced
1.00 – 1.50	Not Practiced

The mean score of 3.51 for *reviewing drawings and making changes*, being practiced by learners suggests that reviewing and refining visual representations help learners in clarifying and reinforcing their understanding of the text. This result aligns with the conclusion of Swan et al. (2018) that reviewing drawings and making changes allows students to deepen their comprehension of the text, supporting the idea that such practices are beneficial in educational settings.

Moreover, *sketching simple drawings to represent visualizations* recorded a mean score of 3.50, indicating it is moderately practiced. This data manifests that even though some learners find sketching very useful, it is not universally preferred. There are learners who may favor mental visualization but some also prefer physical sketches. This suggests a need for additional guidance on the value of sketching as a comprehension tool. This data supports Wilson's (2021) findings, highlighting that students often require structured guidance to use visualization effectively as a comprehension tool. Although students are frequently exposed to visual media, Wilson notes that this exposure doesn't inherently develop their ability to visualize while reading. The findings suggest that while some students benefit from sketching to aid comprehension, others may prefer mental visualization as a means of understanding the text.

With a score of 3.41, *thinking about what might happen next in the story based on the reading* is also moderately practiced. While some learners engage in predictive thinking, they may not use it consistently as a



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visualization strategy. Encouraging this habit could boost deeper engagement with the text, allowing the learners to follow the dynamics of the text. This result is similar to the findings of Goudvis and Harvey (2019), which emphasizes visualization as a mental tool where students draw or imagine scenarios in their minds to enhance comprehension.

Meanwhile, *using mental pictures to aid in learning new words* recorded a mean score of 3.48, and described as moderately practiced. This suggests that, although mental imagery is helpful for vocabulary, learners do not consistently practice it. This strategy has the potential to enhance students' ability to learn new vocabulary, aiding in comprehension.

Lastly, *labeling drawings with words* received the lowest mean score at 2.90, indicating it is moderately practiced and less frequently used. This implies that learners may not often connect visuals with labels and might be attributed to unfamiliarity with this method. Activities that incorporate labeling could strengthen comprehension by linking visual and verbal information, helping students enhance their understanding. Manning (2020) suggests that teaching visualization in a structured way can significantly support students in creating mental images that connect what they see with the text they read. This approach can make a real difference in how students understand and remember information. Manning's work emphasizes that by consistently reinforcing labeling, students become better at linking images with words, which in turn boosts their reading comprehension and helps them make sense of the material more fully.

Inferencing techniques used by learners

Table 2 illustrates learners' inferencing techniques in understanding implied meanings and context-based information in a text. The findings reveal that learners moderately practiced inferencing techniques to identify implied meanings and context within texts as indicated by the aggregate mean of 3.49. This implies that while learners are engaging with inferencing to some extent, there is room for improvement in their ability inferencing skills to comprehend implied meanings and context within texts. Developing these skills could unlock learners' potential to deepen their comprehension of a text's subtleties. This, in turn, makes the reading experience more engaging and insightful, fostering an active connection with the material that enhances not only their comprehension but also their critical thinking as they interpret meanings.

With a mean of 3.84, described as being practiced, learners showed a remarkable ability to *apply personal experiences to comprehend ideas not fully explained*. This signifies that students actively pull from their own backgrounds to fill in the gaps, making the material more relatable. This inferencing strategy could enhance learners' connection with the reading material, making it feel more relevant to their lives.

Another remarkable point comes from *connecting a story to previously known concepts*, which received a mean score of 3.74, and described as being practiced. This shows that learners often rely on familiar knowledge to grasp new material. This ability to link known and new information is powerful for reinforcing learning and comprehension.

These data validate the work of Zwiars (2020), who explains how inference-making allows readers to combine their prior knowledge with information from the text to generate new meaning. According to Zwiars, this active engagement, often described as "reading between the lines," connects readers personally to the text, which enriches their comprehension by making the material more relatable. This perspective is similar to the study where learners demonstrate a practiced ability to connect personal experiences to comprehend implied ideas within texts, underscoring how inferencing contributes to meaningful and relatable reading. It is also similar to the work of Clinton (2021) who stressed the role of personal engagement in comprehension. According to Clinton, using background knowledge to bridge gaps in information, readers can establish a deeper connection with the text. This aligns with the study as learners actively apply personal experiences to make sense of ideas not fully explained, enhancing their engagement and personalizes the reading experience.

With a mean of 3.71, learners also practice *visualizing scenes in their minds to grasp deeper meanings*. When students create mental images while reading, they can connect with the text on a deeper level, making the content feel more vibrant and easier to remember. Helping them with this visualization process can greatly enhance their understanding and improve their inferencing skills, making their reading experience even more effective and engaging.



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Table 2
Learner's use of inferencing techniques in understanding implied meanings and context-based information in a text

Inferencing Techniques	Weighted Mean	Descriptive Interpretation
1. Reading between the lines helps uncover meanings that are not directly stated.	3.46	Moderately Practiced
2. Recognizing when the author is hinting at something without clearly stating it.	2.97	Moderately Practiced
3. Utilizing clues in the text assists in understanding characters' feelings and motives.	3.60	Practiced
4. Looking for reasons behind events in the story reveals how they connect.	3.59	Practiced
5. Contemplating what the author really wants to convey, even when it is not obvious.	2.91	Moderately Practiced
6. Figuring out what pronouns refer to by examining surrounding sentences clarifies meaning.	3.42	Moderately Practiced
7. Applying personal experiences aids in comprehending ideas that are not fully explained.	3.84	Practiced
8. Guessing the meaning of unfamiliar words based on their context is often effective.	3.51	Practiced
9. Predicting what might happen next based on hints from the text enhances engagement.	3.62	Practiced
10. Connecting a story to previously known concepts facilitates better understanding.	3.74	Practiced
11. Identifying patterns in the text helps in following the author's argument or message.	3.55	Practiced
12. Visualizing scenes in the mind contributes to grasping deeper meanings in the text.	3.71	Practiced
Aggregate Mean	3.49	Moderately Practiced

Legend:

Mean	Descriptive Interpretation
4.51 – 5.00	Extremely Practiced
3.51 – 4.50	Practiced
2.51 – 3.50	Moderately Practiced
1.51 – 2.50	Slightly Practiced
1.00 – 1.50	Not Practiced

Inference skill of *predicting what might happen next based on hints from the text*, which received a mean of 3.62 is also practiced by the learners. This ability to anticipate how the story unfolds keeps students engaged and allows them to follow the narrative more easily. This skill can help them become immersed in the material. This finding validates the statement of Clinton (2021) on the impact of inference skills on reading engagement, explaining that making predictions based on textual hints can improve comprehension. Clinton's research shows that the generation of inferences, particularly those rooted in predicting outcomes or story progressions, positively correlates with retention and understanding, as it requires readers to form associative links between prior knowledge and text information.

Another skill worth noting is *utilizing clues to understand characters' feelings and motives*, with a mean score of 3.60, and described as being practiced. This indicates that students can infer emotions and motivations, which adds depth to their understanding of the text. Grasping the dynamics between characters can nurture empathy and improve their overall reading comprehension.

Furthermore, learners actively practice *looking for reasons behind events in the story to see how they connect*, with a mean score of 3.59. This suggests that students are quite skilled at understanding cause and effect.



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When students recognize these connections, they can easily engage with complex narratives and gain a clearer understanding of how the story is structured. This result supports the study of Carlson et al. (2021) stressing that readers who actively seek connections in a text—specifically those regarding causality—can significantly enhance comprehension. Carlson and colleagues highlight that skilled readers more readily make knowledge-based inferences, an ability essential for recognizing cause-and-effect relationships in narratives.

With a mean of 3.55, learners seem skilled at *identifying patterns in the text to follow the author's argument or message*. This indicates that learners can identify recurring themes, which aids them in grasping the overall message and structure of the text, ultimately leading to a deeper understanding.

On the other hand, learners moderately practiced *reading between the lines to uncover unstated meanings*, with a mean score of 3.46. As students try to uncover hidden meanings, they may require additional support to interpret the small details within the text. Strengthening this ability could encourage a more thoughtful and critical approach to reading. According to Zwiers (2020), an active engagement, often described as reading between the lines, connects readers personally to the text, which enriches their comprehension by making the material more relatable. Thus, learners should enhance this inference skill in discovering unstated meanings.

With a mean score of 3.42, learners also moderately practiced *figuring out what pronouns refer to by examining surrounding sentences*. This signifies that, although students use context to clarify pronouns, they could benefit from additional practice in this area. Enhancing this skill could lead to better comprehension, particularly when dealing with complex texts. Oakhill, Cain, and Elbro (2021) discuss the interdependent relationship between vocabulary knowledge and inference-making, specifically noted that clarifying pronoun references is essential for text comprehension. According to them, by explicitly teaching learners how to identify and interpret pronouns and other cohesive ties, teachers can help students build a clearer mental representation of the text. Thus, it is important to enhance inference and vocabulary skills to improve overall comprehension.

The mean scores of 2.97 for *recognizing when the author hints at something without clearly stating it* and 2.91 for *contemplating what the author wants to convey, even when it is not obvious*, interpreted as moderately practiced are indications that students may struggle with grasping implicit messages. This result shows that students are facing challenges in understanding the text. Focused instruction can help them build these skills, enabling them to connect more deeply with the material and appreciate the finer details in what they read. These data validate the observation of Carlson et al. (2021) that students often struggle with knowledge-based inferences. In their study of fourth-grade readers, Carlson and colleagues found that students with lower comprehension skills generated fewer knowledge-based inferences when prompted, showing difficulty understanding implied meanings. This aligns with the findings of the present study, where students scored moderately on recognizing hints and interpreting implied messages, suggesting a similar gap in inferential comprehension.

Combined use of visualization and inference techniques among learners

Table 3 shows learners' use of combined visualization and inference techniques in understanding unclear or vague information. Overall, the aggregate mean score of 3.60 suggests that learners actively apply these combined skills to better understand challenging or unclear information. Learners believe these strategies are not only helpful but essential for deepening their understanding, especially when faced with complex material. These strategies are particularly valuable in exploring unfamiliar content.

The highest mean score recorded, 3.77, is for *making connections between the text and personal experiences to fill in gaps*, as practiced by the learners. This shows that learners frequently draw on their own life experiences to interpret challenging parts of a text. This strategy illustrates how personal memories and background knowledge can be powerful tools in closing comprehension gaps. When educators encourage students to relate the text to their own lives, learning becomes more personal and engaging.



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Table 3
 Learner's use of combined visualization and inference techniques in understanding unclear information

Visualization and Inferencing Techniques	Weighted Mean	Descriptive Interpretation
1. Creating mental images helps clarify confusing parts of the text.	3.60	Practiced
2. Using story clues aids in guessing the meanings of certain words or phrases.	3.47	Moderately Practiced
3. Drawing pictures represents ideas and makes them easier to understand.	3.56	Practiced
4. Making connections between the text and personal experiences fills in gaps.	3.77	Practiced
5. Looking for patterns in the information helps make sense of unclear details.	3.54	Practiced
6. Using context determines meanings when words are unfamiliar.	3.49	Moderately Practiced
7. Visualizing scenes aids in grasping complex ideas.	3.59	Practiced
8. Analyzing hints from the text helps predict possible meanings or outcomes.	3.51	Practiced
9. Connecting previous knowledge to new information improves understanding.	3.70	Practiced
10. Inferring characters' feelings and actions provides deeper insights.	3.56	Practiced
11. Revisiting confusing parts of the text with new images improves clarity.	3.71	Practiced
12. Asking questions about the text guides visualization and inference efforts.	3.70	Practiced
Aggregate Mean	3.60	Practiced

Legend:
 Mean Descriptive Interpretation
 4.51 – 5.00 Extremely Practiced
 3.51 – 4.50 Practiced
 2.51 – 3.50 Moderately Practiced
 1.51 – 2.50 Slightly Practiced
 1.00 – 1.50 Not Practiced

Another strategy practiced by learners is *revisiting confusing parts of the text with new images improves clarity*, with a mean score of 3.71. This indicates that learners often return to difficult sections of a text, this time with refreshed mental images, to achieve a clearer understanding. It shows the value of allowing students to review material from new perspectives to deepen their comprehension.

With a mean score of 3.70, *connecting previous knowledge to new information improves understanding*, as practiced by learners emphasizes the importance of building on prior knowledge. When learners can link familiar concepts to new ideas, they often grasp content more effectively. This insight suggests that teachers should focus on helping students make connections between old and new knowledge to enhance understanding. This supports the argument of Clinton (2021) that effective inference-making requires readers to create meaningful representations of the text, linking their background knowledge with the content.

Moreover, learners practiced *asking questions about the text guides visualization and inference efforts* with a mean score of 3.70 highlights how curiosity can guide learners' understanding. Encouraging students to ask questions as they read can deepen engagement, making it easier for them to visualize and infer meaning.

The mean scores of 3.60 for *creating mental images helps clarify confusing parts of the text* and 3.59 for *visualizing scenes aids in grasping complex ideas* imply the key role of mental imagery in breaking down challenging material. These findings suggest that visualization is a powerful aid in comprehension, particularly for dense or



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iJOINED ETCOR
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E - ISSN 2945-3577



The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

abstract content. Teaching students to harness this skill can greatly boost their engagement with texts. This data aligns with the work of Clinton (2021) which highlights that the ability to visualize scenes enables readers to form a mental framework that enhances retention and understanding.

Furthermore, learners also practiced *inferring characters' feelings and actions which provides deeper insights*, with a mean score of 3.56. This shows students' efforts to interpret characters' motives and emotions, an ability that enables them to read between the lines and make empathetic connections, making stories more engaging and relatable.

Looking for patterns in the information helps make sense of unclear details, and is also practiced by the learners, which recorded a mean score of 3.54. This signifies that learners benefit from noticing patterns and clues, which help them make logical connections and form inferences essential for understanding complex information.

On the other hand, learners moderately practiced the *use of context-determined meanings when words are unfamiliar* and *using story clues aids in guessing the meanings of certain words or phrases*, with mean scores of 3.49 and 3.47, respectively, suggesting that while learners use context to make sense of unfamiliar words, there is room for growth in this strategy. Strengthening skills in using contextual clues could build students' confidence with new vocabulary. This validates the argument of Anderson and Pearson (2017) who discuss the schema theory, emphasizing that readers utilize their existing knowledge to bridge gaps in understanding and enhance text meaning. This perspective aligns with the study's result, where learners demonstrated a moderate ability to use contextual clues.

Conclusion

Visualization and inferencing techniques play a significant role on learners' reading comprehension and engagement. Visualization techniques, especially creating mental images from texts, greatly help students grasp main ideas and important details. Teacher-led examples of visualization further reinforce these skills, indicating the critical role of guidance in cultivating comprehension strategies. Additionally, learners who practice sharing mental images with peers and focusing on key details can benefit from collaborative learning, which brings diverse perspectives into the reading process.

Inferencing techniques also emerged as vital in helping students interpret implied meanings and connect new information with prior knowledge. Techniques such as visualizing scenes, predicting story developments, and understanding characters' emotions not only deepen comprehension but also build critical thinking abilities.

Combining visualization with inferencing strengthens comprehension of complex or vague material, making reading both engaging and insightful. However, the moderate practice of certain strategies, such as using contextual clues for vocabulary, suggests areas for further development.

Recommendations

The study recommends that teachers should intentionally integrate both visualization and inferencing techniques in their reading instruction to enhance students' comprehension and engagement. Teachers should regularly model how to create mental images from texts, guiding students to visualize scenes and highlight key details to strengthen understanding. The teacher can also encourage learners to share their visualizations in group discussions. Additionally, teachers must develop inferencing skills of learners by teaching them to predict developments, interpret emotions, and connect prior knowledge with new information. These recommendations aim to make reading both engaging and insightful, helping students develop lasting comprehension skills that they can apply across subjects.

REFERENCES

- Anderson, R. C. (2017). Role of the reader's schema in comprehension, learning, and memory. In R. C. Anderson (Ed.), *Theoretical models and processes of reading* (4th ed., pp. 466-487). International Reading Association.
- Astani, W. (2021). The use of visualization in desuggestopedia teaching method to improve students' reading comprehension. *English Department, Faculty of Languages and Arts, Semarang State University*.
- Bachman, L. F. (2018). *Fundamental considerations in language testing* (2nd ed.). OUP Oxford.



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- Bachman, L. F., & Palmer, A. S. (2019). *Language testing in practice: Designing and developing useful language tests*. Oxford University Press.
- Blachowicz, C. L., & Ogle, D. (2018). *Reading comprehension: Strategies for independent learners* (2nd ed.). Guilford Press.
- Carlson, S. E., van den Broek, P., McMaster, K., Rapp, D. N., Bohn-Gettler, C. M., Kendeou, P., & White, M. J. (2021). Effects of comprehension skill on inference generation during reading. *International Journal of Disability, Development and Education*, *61*(3), 258–274. <https://doi.org/10.1080/1034912X.2014.93400>
- Clinton, V. E. (2021). The effects of interest on inference generation while reading (Unpublished doctoral dissertation). University of Minnesota.
- Connolly, S. (2017). *Successful strategies for reading in the content areas grades 3–5*. Shell Education.
- Edge, J. (2020). Teacher welcome and teaching tips. In E. (Ed.), *Reading comprehension skills and strategies* (pp. 4–6). Saddleback Educational Publications.
- Gorman, R., & Eastman, G. S. (2021). "I see what you mean": Using visuals to teach metaphoric thinking in reading.
- Goudvis, A., & Harvey, S. (2020). *Strategies that work: Teaching comprehension for understanding and engagement* (2nd ed.). Stenhouse Publishers.
- Hibbin, A. N., & Rankin-Erickson, J. L. (2020). A picture is worth a thousand words: Using visual images to improve comprehension for middle school struggling readers. *Reading Psychology*, *41*(1), 44–68.
- Manning, C. D., Chen, D., & Bolton, J. (2020). A thorough examination of the CNN/Daily Mail reading comprehension task. In *Proceedings of the 54th Annual Meeting of the Association for Computational Linguistics* (Vol. 1: Long Papers, pp. 2358–2367). Association for Computational Linguistics. <https://doi.org/10.18653/v1/2020.acl-main.211>
- McCombes, S. (2019). Descriptive research | Definition, types, methods & example. Scribbr. <https://www.scribbr.com/methodology/descriptive-research/>
- McNamara, D. S. (2021). *Reading comprehension strategies: Theories, interventions, and technologies*. Psychology Press.
- Medina, C. (2017). Introduction. In C. Medina, *Successful strategies for reading in the content areas* (pp. 4-14). Shell Educational Publishing.
- Oakhill, J., Cain, K., & Elbro, C. (2021). *Understanding and teaching reading comprehension: A handbook*. Taylor & Francis Group.
- Paris, S. G., Lipson, M. Y., & Wixson, K. K. (2017). Becoming a strategic reader. In R. B. Ruddell, M. R. Ruddell, & H. Singer (Eds.), *Theoretical models and processes of reading* (4th ed., pp. 788-810). International Reading Association.
- Pearson, P. D., & Stephens, D. (2018). Learning about literacy: A 30-year journey. In R. B. Ruddell, M. R. Ruddell, & H. Singer (Eds.), *Theoretical models and processes of reading* (4th ed., pp. 22-42). International Reading Association.
- Roe, B., Smith, S., & Burns, P. C. (2021). *Teaching reading in today's elementary schools* (11th ed.). Cengage Learning.



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- Rumelhart, D. (2017). Interactive processing through spreading activation. In *Parallel distributed processing: Volume 1: Foundations* (pp. 37–60). Routledge. <https://doi.org/10.4324/9781315108506-2>
- Saraswati, N., & Wicaksono, M. (2021). Enhancing reading fluency and comprehension in oral reading through reading theatre. *Journal of Research on Language Education*, 2(2), 88-92.
- Swan, C., Wong, S., Mohd Ayub, A. F., & Hussin, H. (2018). Reading strategies effect on reading comprehension performance of ESL learners. *International Journal of Academic Research in Business and Social Sciences*, 8(12). <https://doi.org/10.6007/IJARBS/v8-i12/5009>
- Wilson, D. (2021). Training the mind's eye: "Brain movies" support comprehension and recall.
- Zwiers, J. (2020). *Building reading comprehension habits in grades 6-12: A toolkit of classroom activities*. International Reading Association.