

Reading Comprehension Of TUY Senior High School Students Through Localized Bionic Reading Materials

Celine M. Lenisen ¹, Esperenza B. Lusanta, EdD ¹
lenisenciell@gmail.com / 0009-0004-3163-5612

1 – Golden Gate Colleges

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Abstract

Reading comprehension is considered a fundamental skill that significantly affects students' academic achievement across different subjects. It allows learners to interpret information, derive meaning from texts, and apply knowledge critically in various learning situations. This research investigates the impact of localized bionic reading materials on the reading comprehension of Grade 11 and 12 frustration-level learners at Tuy Senior High School during the school year 2025–2026.

This study focused on students' reading development in terms of content and skills, involving 40 purposively selected participants. A quantitative descriptive design was employed, utilizing survey questionnaires, before and after reading assessments, and statistical tools such as weighted mean and composite mean to analyze the data.

Findings revealed significant improvement in students' comprehension skills after the implementation, particularly in identifying main ideas, making inferences, understanding vocabulary, and sequencing events. The materials also enhanced students' engagement, participation, and confidence in completing reading tasks. However, minor challenges were observed, including difficulty in understanding some words and initial confusion with the bionic format.

The study concluded that localized bionic reading materials are an effective instructional strategy. It recommended their integration into classroom practice, provision of teacher training, development of enhancement activities such as guided bionic reading with vocabulary support, and further research to explore long-term effectiveness and broader application in different educational contexts.

Keywords: *localized instructional materials, bionic reading, reading comprehension, frustration-level learners, reading intervention, learner engagement*

I. Introduction

Reading comprehension is widely recognized as a foundational skill that influences learners' academic success across disciplines. It enables students to interpret information, construct meaning from texts, and apply knowledge critically in various learning contexts. In secondary education, particularly in Senior High Schools, learners are expected to engage with increasingly complex academic texts that require higher-order thinking skills. Consequently, the ability to comprehend written material effectively becomes not only a language competency but also a survival skill in academic performance and lifelong learning.

However, reading comprehension has been identified as a major learning gap in the Philippine Education System based on national and international assessments. First, based on the Programme for International Student Assessment (PISA) conducted in 2018, Filipino learners ranked among the lowest in reading literacy among participating countries, obtaining an average score of 340, which is significantly below the global average of 487 (OECD, 2019). Results indicated that the majority of Filipino students were only able to locate simple pieces of information in short texts and demonstrated limited ability to interpret, integrate, and evaluate information.

Furthermore, the EDCOM II Final Report highlighted reading comprehension as one of the critical learning gaps affecting Filipino learners. The report noted that many students struggle with foundational literacy skills, which affects their overall academic performance across subjects. It also emphasized that learning disruptions in recent years have further widened literacy gaps, making the improvement of reading comprehension a priority concern for the education sector. These documented findings from international assessments and national education reports demonstrate the urgency of conducting studies and implementing evidence-based interventions to improve reading comprehension among Filipino learners.

Moreover, previous studies highlighted that learners often struggle not only because of limited vocabulary but also due to low engagement and difficulty sustaining attention while reading dense texts. According to Vaughn and Barnes (2023), comprehension difficulties are frequently linked to cognitive processing challenges and insufficient instructional supports that scaffold understanding. In this regard, innovative reading approaches that guide visual focus and cognitive processing may contribute positively to comprehension development. One such approach is Bionic Reading, a method that emphasizes parts of words to facilitate faster recognition and improved focus, thereby supporting reading efficiency and engagement.

In addition, localization of instructional materials has been identified as an effective strategy for increasing learner engagement and comprehension. When texts reflect familiar settings, cultural references, and community experiences, learners are more likely to connect prior knowledge with new information. As mentioned on the study of Bernardo (2019), he emphasized that contextualized learning materials enhance meaning-making because students are able to relate content to their lived realities. Therefore, combining localized content with innovative reading formats may provide a dual support system in student's cognitive and contextual aspects that strengthens their comprehension skills.

At Tuy Senior High School, there were reading assessments conducted per quarter during the class's D.E.A.R time (12:00-12:30 noon). After this, the data were consolidated by the English and Filipino Reading Coordinators to publish a comprehensive accomplishment report. Based on the results of these assessments, the researcher found out that there were several readers in Tuy Senior High School who experience difficulty in identifying main ideas, drawing inferences, and retaining information from academic texts which results in poor engagement during reading time. Moreover, many students demonstrate slow reading pace and reduced engagement when confronted with lengthy reading passages. In addition to this, comprehension scores in formative assessments remain below expected independent levels. If these challenges remain unaddressed, learners may continue to struggle not only in English subjects but also in content areas that require strong reading skills.

Given the national literacy concerns, empirical support for cognitive-based reading strategies, and the observed comprehension difficulties among Tuy Senior High School learners, the researcher concluded that there is a compelling need to explore innovative and context-responsive interventions in the reading comprehension of students in Tuy Senior High School. Hence, this action research is grounded on the premise that enhancing reading comprehension through localized Bionic reading materials may provide an effective, practical, and sustainable solution to improve learners' academic performance. By integrating visual-cognitive support with culturally relevant content of Tuy, this study seeks to address both the macro-level literacy concerns and the micro-level instructional needs within the Tuy Senior High School.

II. Methodology

Research Design

The study employed a quantitative descriptive research design to determine the effectiveness of localized bionic reading materials in improving the reading comprehension skills of Grade 11 and 12 struggling readers at Tuy Senior High School. Using surveys, reading assessments, and performance evaluations, the descriptive research approach enabled the researcher to gather measurable data, describe students' comprehension levels, and examine the effectiveness of the instructional materials in enhancing their reading skills.

Participants

This study involved 40 students from Tuy Senior High School, consisting of 20 males and 20 females. The respondents were selected through Purposive Sampling based on the results of the Reading English Assessment conducted during the First quarter of the school year 2025–2026.

Research Instrument

The questionnaire was constructed by the researcher to assess the reading comprehension level of Tuy Senior High School students and the challenges they encountered during the implementation of localized bionic reading materials. Related literature was reviewed to support the development of the instrument. The questionnaire consisted of scaled-response items that allowed students to rate their agreement from “**Strongly Disagree**” to “**Strongly Agree**.” Part I focused on students’ reading comprehension before and after the implementation, Part II assessed the effectiveness of the materials in terms of identifying main ideas, making inferences, vocabulary understanding, and sequencing events, Part III examined the effects of the materials on students’ comprehension levels, and Part IV identified the challenges experienced by the students. The questionnaire underwent validation by the Assistant Principal and research experts, and revisions were made based on their suggestions before final approval. After securing permission from the school principal, the questionnaires were distributed personally by the researcher and collected immediately after completion. Responses were assigned numerical weights from 1 to 4, with corresponding verbal interpretations ranging from “**Strongly Disagree**” to “**Strongly Agree**.”

Data Collection Procedure

The researcher prepared a formal request letter addressed to the school principal of Tuy Senior High School to seek permission to conduct the study. Upon approval, the questionnaire was developed and finalized while ensuring respondents’ consent and data privacy throughout the research process. After securing all necessary permissions, the researcher personally facilitated the reading sessions and administered the research questionnaire through Google Forms to ensure accurate and reliable data collection. The gathered data were then organized, tallied, and prepared for analysis and interpretation.

Data Analysis

In assessing students’ comprehension skills, the study utilized statistical tools such as the composite mean and weighted mean to ensure accurate analysis of the data. The composite mean was used to determine the overall average of the respondents’ answers across the identified variables, while the weighted mean measured the effectiveness of the localized bionic reading materials based on the students’ responses. These statistical methods helped examine the students’ comprehension skills and evaluate the effectiveness of the implemented reading materials.

III. Result

This presents the findings of the study, which aimed to investigate the impact of the localized bionic reading materials on the reading comprehension skills of Grade 11 and 12 students at Tuy Senior High School. The results are organized according to the research questions, focusing on students’ reading comprehension level, the effectiveness of the

localized bionic reading materials, the extent of benefits of each reading materials in students' reading comprehension and the challenges they faced in utilizing localized bionic reading materials.

1. Reading Comprehension Level of the Students

Table 1
Students' Reading Comprehension Level Before the Utilization of Localized Bionic Reading Materials

Statements	Weighted Mean	Verbal Interpretation
1. I find it easy to understand the main idea of the reading passages given in class.	2.24	Agree
2. I can identify important details in a text without difficulty.	2.50	Agree
3. I can answer comprehension questions after reading a passage.	1.83	Disagree
4. I can understand unfamiliar words in a text using context clues.	1.72	Strongly Disagree
5. I feel confident in my ability to understand the texts assigned by my teacher.	2.52	Agree
COMPOSITE MEAN	2.16	Disagree

Table 2
Students' Reading Comprehension Level After the Utilization of Localized Bionic Reading Materials

Statements	Weighted Mean	Verbal Interpretation
1. The localized bionic reading materials help me understand the main idea of the text more easily.	3.32	Agree
2. I can identify key details in the reading passages when using bionic reading materials.	3.35	Agree
3. The format of the localized bionic reading materials helps me answer comprehension questions better.	3.32	Agree
4. The highlighted or emphasized parts of the text help me understand difficult words and sentences.	3.3	Agree
5. Using localized bionic reading materials improve my overall reading comprehension.	3.3	Agree
COMPOSITE MEAN	3.31	Agree

2. Effectiveness of using Localized Bionic Reading Materials

Table 3

Effectiveness of Utilizing Localized Bionic Reading Materials as to Identifying the Main Idea

Statements	Weighted Mean	Verbal Interpretation
1. The localized bionic reading material helped me identify the topic or subject of the given text.	3.30	Agree
2. The emphasized words in the bionic reading material helped me recognized the most important details in the passage.	3.30	Agree
3. The localized context of the reading material helped me distinguish supporting details from the main idea.	3.22	Agree
4. The format of the bionic reading material helped me determine the sentence that expresses the main idea of the paragraph.	3.32	Agree
5. Using localized bionic reading materials helped me summarize the main idea of the text in my own words.	3.30	Agree
COMPOSITE MEAN	3.29	Agree

Table 4

Effectiveness of Using Localized Bionic Reading Materials as to Making Inferences

Statements	Weighted Mean	Verbal Interpretation
1. The localized bionic reading materials help me understand ideas that are not directly stated in the text.	3.20	Agree
2. I can make logical guesses about the meaning of the passage when using bionic reading materials.	3.32	Agree
3. The emphasized parts of the text help me connect clues to form inferences.	3.42	Agree
4. Using localized bionic reading materials helps me better interpret implied meanings in a passage.	3.32	Agree
5. The materials help me think more deeply about the information presented in the text.	3.32	Agree
COMPOSITE MEAN	3.31	Agree

Table 5
Effectiveness of Using Localized Bionic Reading Materials
as to Vocabulary Understanding

Statements	Weighted Mean	Verbal Interpretation
1. The emphasized parts of the text help me identify important vocabulary words.	3.32	Agree
2. The localized bionic reading materials help me understand unfamiliar words in the passage.	3.35	Agree
3. The materials make it easier for me to learn new vocabulary while reading.	3.22	Agree
4. I can guess the meaning of difficult words using context clues in the bionic reading materials.	3.25	Agree
5. The localized examples in the text helped me connect new vocabulary words to familiar situations or experiences.	3.27	Agree
COMPOSITE MEAN	3.28	Agree

Table 6
Effectiveness of Using Localized Bionic Reading Materials
as to Sequencing of Events

Statements	Weighted Mean	Verbal Interpretation
1. I can easily identify what happens first, next, and last when using bionic reading materials.	3.45	Agree
2. The localized bionic reading materials help me understand the order of events in a story or passage.	3.32	Agree
3. The highlighted parts of the text guide me in following the sequence of events.	3.40	Agree
4. Using localized bionic reading materials helps me organize events in the correct order.	3.15	Agree
5. The materials make it easier for me to track the flow of events in the passage.	3.27	Agree
COMPOSITE MEAN	3.31	Agree

3. Benefits of Using Localized Bionic Reading Materials in the Reading Comprehension Level of Students

Table 7
Benefits of Using Localized Bionic Reading Materials
as to Reading Content

Statements	Weighted Mean	Verbal Interpretation
1. The bionic reading format helped me organize the ideas presented in the reading passage.	3.22	Agree
2. The structure of the bionic reading material helped me follow the sequence of ideas in the passage.	3.37	Agree
3. The localized examples in the reading material helped me relate the content of the text to real-life situations.	3.27	Agree
4. I can remember the information from the reading passages better when using bionic reading materials.	3.37	Agree
5. The localized bionic reading materials help me grasp the overall message of the reading content.	3.25	Agree
COMPOSITE MEAN	3.30	Agree

Table 8
Benefits of Using Localized Bionic Reading Materials as to Lacks of Participation

Statements	Weighted Mean	Verbal Interpretation
1. The localized bionic reading materials encourage me to participate more during reading activities.	3.37	Agree
2. I feel more confident answering questions in class when using bionic reading materials.	3.17	Agree
3. I ask questions about the text to clarify the parts I do not fully understand in the localized bionic reading material.	3.25	Agree
4. I am more willing to read aloud or share my ideas when using localized bionic reading materials.	3.25	Agree
5. The use of localized bionic reading materials reduces my hesitation to participate in reading tasks.	3.15	Agree
COMPOSITE MEAN	3.29	Agree

Table 9
Benefits of Using Localized Bionic Reading Materials as to Assessment Task

Statements	Weighted Mean	Verbal Interpretation
1. The localized bionic reading materials help me perform better in reading comprehension assessments.	3.20	Agree
2. I can answer the comprehension questions more easily	3.35	Agree

when I use bionic reading materials.		
3. The materials help me understand the passages used in quizzes or assessment tasks.	3.25	Agree
4. Using localized bionic reading materials improves my confidence in completing reading assessments.	3.20	Agree
5. After using localized bionic reading materials, I can explain or justify my answers in the comprehension questions.	3.25	Agree
COMPOSITE MEAN	3.25	Agree

4. Challenges Encountered by Students in Utilizing Localized Bionic Reading Materials

Table 10
Challenges Encountered by Students in Utilizing Localized Bionic Reading Materials

Statements	Weighted Mean	Verbal Interpretation	Rank
1. I find it difficult to adjust to the format of the localized bionic reading materials.	2.45	Disagree	3
2. The emphasized or bolded parts of the text sometimes make the passage harder for me to read.	2.35	Disagree	4.5
3. I still struggle to understand some words or sentences even when using the localized bionic reading materials.	2.62	Agree	1
4. I feel confused when reading passages that use the bionic reading format.	2.60	Agree	2
5. It takes time for me to become comfortable using localized bionic reading materials during reading activities.	2.35	Disagree	4.5
COMPOSITE MEAN	2.47	Disagree	

IV. Discussion

This presents the findings of the study, which aimed to investigate the impact of the localized bionic reading materials on the reading comprehension skills of Grade 11 and 12 students at Tuy Senior High School. The results are organized according to the research questions, focusing on students' reading comprehension level, the effectiveness of the localized bionic reading materials, the extent of benefits of each reading materials in students' reading comprehension and the challenges they faced in utilizing localized bionic reading materials.

1. Students' Reading Comprehension Level

1.1 Before the Utilization of Localized Bionic Reading Materials

Table 1 indicates that students are lacking of the mentioned skills in reading as revealed by the composite mean of 2.16, which falls under the "Disagree" category. The statement, "I feel confident in my ability to understand the texts assigned by my teacher" received the highest weighted mean which is 2.52 and interpreted as "Agree". This suggests that students agreed that they are confident in understanding the assigned text given by the teacher. Moreover, the statement, "I can understand unfamiliar words in a text using context clues" received the lowest weighted mean, which is 1.72, and interpreted as "Strongly Disagree".

A related study supported these findings by emphasizing the role of context clues in improving reading comprehension. The study found that students who struggle to use context clues often have difficulty understanding unfamiliar vocabulary, which negatively affects their overall comprehension (Miyanti & Sujono, 2024).

1.2 Students' Reading Comprehension Level After the Utilization of Localized Bionic Reading Materials

Table 2 shows the students reading comprehension level after the utilization of localized bionic reading materials gained a composite mean of 3.31 which interpreted as "Agree". This suggest that, there is a significant improvement in using a localized reading material in assessing the students' reading comprehension. The statement, "I can identify key details in the reading passages when using bionic reading materials" which comprises the highest weighted mean (3.35) indicated that the suggested reading materials really help the students to identify the gist of reading passage. On the other hand, the statements, "The localized bionic reading materials help me understand the main idea of the text more easily." and "The format of the localized bionic reading materials helps me answer comprehension questions better." which gathered the same weighted mean of 3.32 and interpreted as "Agree" proved that using the localized bionic reading materials improves the students' understanding of the main idea and that serve it as a guide to answer easily the given comprehension questions.

These findings align with the study of Santos (2024) that students exposed to Bionic Reading moved toward the instructional level after the intervention, showing that visual emphasis and structured text presentation can help learners better process and understand reading materials.

2. Effectiveness of Utilizing Localized Bionic Reading Materials

2.1 Identifying the Main Idea

Table 3 shows the effectiveness of utilizing localized bionic reading materials as to identifying the main idea, with a composite mean of 3.29 and interpreted as "Agree". This indicates that students generally find the suggested reading materials effective in enhancing their reading comprehension. The statement, "The format of the bionic reading material helped me determine the sentence that expresses the main idea of the paragraph," gained the highest mean of 3.32 and interpreted as "Agree". This suggested that students find the format of the reading material highly impactful as it help them realized and determine the main idea in the paragraph. Moreover, the statement, "The localized context of the reading

material helped me distinguish supporting details from the main idea,” although gained a slightly lower weighted mean of 3.22 among other indicators, it is still interpreted as “Agree”. This indicates that even the students master identifying the main idea in a paragraph, they still find some minor struggles in distinguishing the supporting details in the paragraph while using the localized bionic reading materials.

These findings are supported by the study of Baron (2021), who found that students comprehend texts better when visual cues such as highlighted words and structured formatting are present. The study explained that such features help readers focus on essential parts of the text, making it easier to identify the main idea and important details.

2.2 Making Inferences

Table 4 shows that most indicators received high weighted means like the statements, “The emphasized parts of the text help me connect clues to form inferences,” with a weighted mean of 3.42 then, followed by statements like, “I can make logical guesses about the meaning of the passage when using bionic reading materials,” “Using localized bionic reading materials helps me better interpret implied meanings in a passage,” “The materials help me think more deeply about the information presented in the text,” which gained the same weighted means of 3.32 and all interpreted as “Agree”. These indicate that the visual features of the bionic reading materials effectively guided learners to identify textual cues and synthesize information. To add, the highlighted words in the reading materials help students to think more deeply and make logical guesses about the meaning of the passage. Meanwhile, the statement, “The localized bionic reading materials help me understand ideas that are not directly stated in the text,” got the lowest mean of 3.20 and interpreted as “Agree”. While still positive, this suggested that some students may still experience minor difficulty in fully grasping implicit ideas, highlighting an area where further instructional support may be beneficial.

This result is related to Aqdas (2025), who asserted that learners performed more effectively in analytical and inferential comprehension tasks when the reading content was connected to their cultural background and prior experiences.

2.3 Vocabulary Understanding

a weighted mean of 3.22 (Agree). Although they received a positive interpretation, these indicate that students may require additional support in independently developing vocabulary through inference and contextual analysis.

This result is consistent with the study of Jomocan (2022), which found that contextual clues and highlighted reading strategies significantly help learners develop vocabulary knowledge and reading comprehension. The study explained that emphasizing keywords and using contextualized materials enable students to better understand difficult vocabulary through meaningful reading experiences.

2.4 Sequencing of Events

Table 6 shows that the students agreed on the effectiveness of using localized bionic reading materials in sequencing events as revealed by a composite mean of 3.31.

Among the indicators, the statement “I can easily identify what happens first, next, and last when using bionic reading materials” obtained the highest weighted mean of 3.45, interpreted as “Agree.” This result reveals that the highlighted and structured format of the localized bionic reading materials effectively guided students in recognizing the

chronological order of events. It suggests that the materials successfully improved students' ability to follow the flow of information in a passage.

On the other hand, the statement "Using localized bionic reading materials helps me organize events in the correct order" received the lowest weighted mean of 3.15, although still verbally interpreted as "Agree." This indicates that while students benefited from the materials, some still experienced difficulty in arranging events independently and accurately. It may suggest the need for additional activities and teacher guidance focused on sequencing and organizing ideas.

The familiarity of the content helped learners follow the structure of the story and track the flow of events, which supports the development of sequencing skills. The findings imply that localized reading materials are a valuable tool for enhancing early reading skills, including the ability to identify and order beginning, middle, and ending events in a narrative passage (Angeles et al., 2022)

3. Benefits of Using Localized Bionic Reading Materials in the Reading Comprehension Level of Students

3.1 Reading Content

Table 7 unveils that the students agreed on the effectiveness of using localized bionic reading materials in comprehending the content a story or passage, as disclosed by a composite mean of 3.30. The statements, "The structure of the bionic reading material helped me follow the sequence of ideas in the passage" and "I can remember the information from the reading passages better when using bionic reading materials" obtained the highest weighted mean of 3.37, interpreted as "Agree." These findings suggest that the structured and emphasized format of the localized bionic reading materials effectively supported students in understanding the flow of ideas and retaining important information from the text. Moreover, the statement, "The bionic reading format helped me organize the ideas presented in the reading passage" received the lowest weighted mean of 3.22, although still verbally interpreted as "Agree." This indicates that while the students found the materials beneficial, some still experienced challenges in organizing ideas independently. It may imply that students need more guided activities and practice in arranging and connecting ideas within a text.

This finding was related to a recent study of Sanico et al. (2024) which emphasized that students who used localized bionic reading materials achieved higher scores in comprehension of main ideas, supporting details, and overall content meaning. They reported that the highlighted parts helped them focus on key information, track the flow of ideas, and connect details more easily.

3.2 Lacks Participation

Table 8 shows a weighted mean of 3.37, the students agreed that localized bionic reading materials encourage them to participate more during reading activities. The statement "The localized bionic reading materials encourage me to participate more during reading activities" obtained the highest weighted mean of 3.37, interpreted as "Agree." This finding suggest that the localized and emphasized format of the materials motivated students

to become more active during class discussions and reading activities. In contrast, the statement, “The use of localized bionic reading materials reduces my hesitation to participate in reading tasks” received the lowest weighted mean of 3.15, although still verbally interpreted as “Agree.” This indicates that while the materials positively influenced students’ participation, some students still experienced hesitation or lack of confidence when engaging in reading tasks. This may suggest that additional encouragement and supportive classroom strategies are still needed to help students fully overcome their anxieties in participating.

A study by Sánchez-Castañeda et. al (2021) discussed the potential benefits of bionic reading for readers of all abilities. The authors argue that bionic reading tools can enhance reading comprehension, increase reading motivation, and improve self-efficacy for all learners.

3.3 Assessment Task

As presented in Table 9, the students agreed on the effectiveness of localized bionic reading materials in terms of assessment task having a composite mean of 3.25. The statement, “I can answer the comprehension questions more easily when I use bionic reading materials” obtained the highest weighted mean of 3.35, interpreted as “Agree.” This finding suggests that the highlighted and organized format of the localized bionic reading materials helped students better understand the text and locate important information needed to answer comprehension questions. It implies that the materials supported students in processing reading passages more effectively during assessments. On the other hand, the statements “The localized bionic reading materials help me perform better in reading comprehension assessments” and “Using localized bionic reading materials improves my confidence in completing reading assessments” both received the lowest weighted mean of 3.20, although still verbally interpreted as “Agree.” This indicates that while students acknowledged the benefits of the materials, some were still uncertain about their overall performance improvement and confidence during assessments. This may suggest that students need more continuous exposure and practice using the materials to fully develop confidence and mastery in reading comprehension tasks.

In aligned with this study, Centeno (2026) highlighted the positive impact of using localized reading materials to improve learners' reading comprehension skills, suggesting that tailored content can effectively address specific educational needs and contribute to better learning outcomes.

4. Challenges Encountered by Students in Utilizing Localized Bionic Reading Materials

Table 10 presents the challenges encountered by students in utilizing localized bionic reading materials. They agreed that they still struggle to understand some words or sentences using this kind of material with a weighted mean of 2.62, being first in the rank. Second, they agreed to feel confused when reading passages that use bionic format having a weighted mean of 2.60. Third in rank, they disagreed on the difficulty of adjusting in the format of localized bionic reading material, with a mean of 2.45. Lastly, they disagreed that the emphasized or bold parts of the text make the passage harder for them to read; it takes time for them to become comfortable to use localized bionic reading materials in reading activities, as indicated by a weighted mean of

2.35. To sum up, the students disagreed on the challenges they encountered in utilizing localized bionic reading materials as revealed by a composite mean of 2.47.

These findings are supported with eye-tracking and behavioral research indicating that bionic font does not markedly ease the processing of low-frequency or unfamiliar words and that readers continue to distribute fixations across the entire word, rather than relying only on the bold leading letters (Chen et al. 2025). Similarly, the modest disagreement regarding the difficulty of adjusting to the format and the time needed to become comfortable with localized bionic reading materials likewise aligns with studies describing bionic reading as having a learning curve that diminishes as readers grow accustomed to the bold-letter pattern (Budomo et al., 2023; Studyory, 2025).

Conclusion

1. The implementation of localized bionic materials before and after the reading assessments indicates that students became more capable and confident in their reading comprehension skills as it showed consistent improvement particularly in identifying the main idea, answering comprehension questions, and understand unfamiliar words in a text using context clues.
2. The effectiveness of utilizing the localized bionic materials on students' reading comprehension as to identifying the main idea was determining the sentence that expresses the main idea of the paragraph, as to making inferences was connecting clues to form inferences, as to vocabulary understanding was realizing unfamiliar words in the passage making learning more meaningful and lastly, as to sequencing of event was identifying what happens first, next, and last when using bionic reading materials.
3. The benefits of utilizing the reading strategy in the students' reading comprehension as to reading content were sequencing of ideas in the passage and remembering the information from the reading passages better while, as to lacks of participation was encouraging to participate more during reading activities and as to assessment task was answering the comprehension questions more easily when using the bionic reading materials.
4. The challenges encountered by the students were they struggled in understanding some words or sentences, confused when reading passages even when using the localized bionic reading materials and it took time for them to become comfortable using localized bionic reading materials during reading activities.
5. The suggested enhancement activity that may adopt is the **Guided Bionic Reading with Vocabulary Support and Think-Aloud** activity enhances students' comprehension by combining teacher modeling, explicit vocabulary instruction, and gradual guided reading practice to reduce confusion, improve understanding of words and sentences, and help learners become more comfortable with localized bionic reading materials

Recommendations

Based on the findings and conclusions, the following recommendations are made:

1. Teachers may implement the Localized Bionic Reading Materials as a standard instructional strategy for Senior High School students then, develop interventions and enhancement reading activities.
2. School administrators may provide continuous professional development opportunities and additional collaboration activities for teachers to enhance their skills in implementing the Localized Bionic Reading Materials effectively.
3. Further research may be conducted to investigate the long-term effectiveness of Localized Bionic Reading Materials on students' reading skills and explore the potential of incorporating digital tools and multimedia elements to enhance the guided reading experience.
4. Findings of this action research may be shared with other schools and educational institutions to promote the adoption of Localized Bionic Reading Materials and contribute to the improvement of students' literacy in the Philippines.

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