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Research Article

Utilizing Knowledge Web in Strengthening Summarizing Informational Text Among Grade 7 Students

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ABSTRACT:

This study assessed the effectiveness of the Knowledge Web Strategy, a modified graphic organizer, in improving the text summarization skills of Grade 7 students at Camantiles National High School, Urdaneta City, Pangasinan, during School Year 2025–2026. Many junior high school learners struggle with summarizing informational texts due to difficulty identifying main ideas, organizing details, and paraphrasing accurately. A true experimental pretest-posttest design was employed, with 32 Grade 7 students randomly assigned to an experimental group (taught using the Knowledge Web Strategy) and a control group (taught using the traditional lecture method). A validated teacher-made pretest and posttest, aligned with the Grade 7 English MATATAG Curriculum Guide, measured summarization performance before and after a one-week intervention. Results showed no significant difference between groups at pretest ($t = 0.473$, $p = 0.640$), confirming comparable baseline skills. Both groups improved significantly from pretest to posttest, but the experimental group achieved a substantially higher gain (7.69 points, from 10.44 to 18.13) than the control group (4.68 points, from 10.63 to 15.31), with a significant posttest difference favoring the experimental group ($t = 4.563$, $p = 0.000$). These findings indicate that the Knowledge Web Strategy is more effective than traditional lecture-based instruction in developing summarization skills. The study recommends adopting the strategy in reading and writing instruction and providing related professional development for teachers.

Keywords: Knowledge Web Strategy, Text summarization, Graphic organizer, Reading comprehension, Instructional strategy

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INTRODUCTION

Writing is a fundamental language skill that allows learners to organize, express, and communicate ideas effectively (Graham et al., 2017). Among writing competencies, summarizing is particularly important because it requires students to identify key ideas, eliminate unnecessary details, and restate information concisely in their own words. Because summarizing draws on higher-order thinking — analysis, synthesis, and evaluation — it strengthens reading comprehension, critical thinking, and written communication (Baker, 2025). Yet many learners struggle with summary writing, producing summaries that are either incomplete or overly detailed, largely because they find it difficult to identify main ideas, organize information, and paraphrase accurately.

International reading assessments have repeatedly highlighted the difficulty Filipino learners face in comprehending, interpreting, and synthesizing information from text (Bernardo & Mante-Estacio, 2023), pointing to weaknesses in the very skills that summarizing requires. In the Philippine context, the K to 12 English Curriculum includes summarizing as a learning competency, yet junior high school learners continue to struggle with identifying main ideas, organizing information, and paraphrasing in their own words. This gap is not confined to instruction alone: large class sizes, limited instructional time, and uneven access to individualized feedback make it difficult for teachers to provide the scaffolding summarizing requires.

At Camantiles National High School in Urdaneta City, Pangasinan, this concern is especially visible among Grade 7 learners, who are transitioning from elementary to secondary education and are expected to develop stronger comprehension and writing skills. Based on the school's PHIL-IRI pre-assessment results conducted

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before September 2025, only 17 of the Grade 7 cohort were classified as independent readers, while 43 fell under the instructional level and 41 under the frustration level. This distribution indicates that a large majority of learners experience difficulty comprehending texts independently and identifying important details — difficulties that directly undermine their ability to summarize informational texts, since summarizing requires comprehension, organization, and synthesis of information.

One instructional strategy that may address these difficulties is the Knowledge Web, a modified graphic organizer that helps learners visually organize information and establish relationships among ideas. By placing a central topic at the core and arranging subtopics, key points, and supporting evidence along connected lines, the Knowledge Web allows students to see how information is hierarchically related, helping them identify essential content, eliminate redundancy, and organize their summaries logically. This aligns with cognitive learning principles such as meaningful learning and cognitive load reduction, which hold that learning is more effective when learners can visualize relationships among ideas rather than process them as unstructured linear text. Graphic organizers of this kind have been associated with improved comprehension, retention, and summarization performance across a range of educational contexts (Kim et al., 2004; Wang et al., 2021; Zainudin et al., 2021).

Summarizing has been described in the literature as more than a mechanical shortening of text: it is a metacognitive strategy that prompts learners to monitor their own comprehension, identify essential ideas, and reconstruct meaning in their own words (Reading Rockets, n.d.). Because it draws on comprehension-monitoring and self-regulation, summarizing is closely tied to broader academic and even professional competence, and difficulties in one area tend to compound difficulties in the other (Dechavez et al., 2025; Ophuis-Cox et al., 2023).

Visual mapping tools — mind maps, concept maps, and their variants such as the Knowledge Web — have been widely proposed as scaffolds for this process. Grant and Archer (2019) describe mind mapping as a way of transforming linear information into interconnected nodes, allowing learners to see relationships among ideas rather than process them sequentially. Buzan (2018) similarly argued that mind maps support memorization and multidimensional thinking beyond what conventional note-taking allows, while Kireeva (2019) frames mind mapping as a basic tool of cognition that supports brainstorming, organization, and idea visualization more broadly. Concept- and mind-mapping approaches have shown consistent benefits for second-language learners as well: a meta-analysis of studies conducted between 2006 and 2024 found positive effects of concept mapping on second-language learning outcomes (Han, 2025), and a separate meta-analysis of mind-mapping-based instruction reported positive effects on cognitive learning outcomes across subjects, with the largest benefits observed among lower-grade learners (Shi et al., 2023) — a pattern directly relevant to a Grade 7 population such as the one in this study.

At the level of classroom practice, mind mapping has been linked to improved writing performance and motivation. Pradasari and Pratiwi (2018) found that mind mapping supported idea generation and organization during the pre-writing stage of procedural-text writing, while Khusniyah (2019) reported gains in descriptive writing ability when mind mapping was used as a pre-writing tool. Sabarun *et al.,*(2021) found that a “flow mind map” improved both writing accuracy and learning motivation among higher-education learners, and Hasanah and Ali (2020) similarly reported that mind mapping increased students’ motivation to write by supporting idea generation and self-regulation during the writing process. Collaborative and technology-supported forms of mapping have shown comparable benefits: Choudhari *et al.,*(2021) found that visual mapping techniques supported learning in community-based educational activities, and Jiang and Kalyuga (2022) linked collaborative, cognitively-supported writing environments to improved writing performance among English-as-a-foreign-language learners.

These tools are also grounded in established learning theory. Wang *et al.,*(2021) linked the benefits of interactive graphic organizers in online learning to generative learning theory, which holds that learners build understanding by actively organizing and integrating new information rather than passively receiving it. Kim *et al.,*(2004),

in a synthesis of research on graphic organizers and reading comprehension, found consistent benefits for learners — including those with learning disabilities — attributable in part to the reduced cognitive load of processing visually organized information rather than dense linear text. Zainudin *et al.,*(2021) reported that graphic organizers assisted the summary-writing process specifically by helping learners separate essential from non-essential information before drafting.

Despite this substantial base of supportive evidence, comparatively little research has examined the Knowledge Web specifically — as distinct from more general mind maps or concept maps — as an intervention for Grade 7 students' summarizing skills, and even less has done so within the Philippine public-school context. This gap motivated the present study, which sought to generate localized, classroom-based evidence on whether the Knowledge Web can meaningfully strengthen Grade 7 learners' ability to summarize informational text relative to conventional lecture-based instruction.

This study therefore determined the effectiveness of the Knowledge Web Strategy in strengthening the competence of Grade 7 students at Camantiles National High School in summarizing informational text, in comparison with the traditional lecture method. Specifically, it sought to answer:

1. What is the performance of the control group and the experimental group in summarizing informational text, based on their pretest and posttest results?
2. Is there a significant difference in the performance of the two groups in terms of (a) pretest, (b) posttest, (c) pretest-and-posttest performance within each group, and (d) mean gain?

The corresponding null hypotheses, tested at the 0.01 level of significance, state that no significant difference exists between the two groups' pretest performance, their posttest performance, or between each group's own pretest and posttest performance.

The findings of this study are intended to benefit school administrators and curriculum developers in planning instructional resources and programs; English supervisors and coordinators in identifying effective interventions; classroom teachers seeking practical strategies for teaching summarization; and future researchers studying graphic organizers and writing instruction. The study is limited to Grade 7 students' summarizing performance on expository texts and does not address broader writing competencies such as grammar, vocabulary, or creative writing.

MATERIALS AND METHODS

Research Design:

This study used a true experimental pretest-posttest design, which is well suited to measuring the change produced by an intervention while controlling for assignment bias (Shuttleworth, 2009). Two intact but randomly assigned groups of Grade 7 students were compared: an experimental group exposed to the Knowledge Web Strategy and a control group taught through the traditional lecture method. Both groups completed a pretest before the intervention and a parallel posttest afterward.

Locale and Participants:

The study was conducted at Camantiles National High School, Urdaneta City, Pangasinan, Philippines, during School Year 2025–2026. Camantiles National High School ranked second among secondary schools in Urdaneta City for the number of Grade 7 students classified under the frustration reading level in the Division's S.Y. 2024–2025 pretest reading assessment, which motivated the choice of this school and grade level.

Thirty-two Grade 7 students, drawn from two of the school's three Grade 7 sections, participated in the study. The two sections with the highest proportion of students at the instructional and frustration reading levels (based on PHIL-IRI pre-assessment results) were selected, as these students were considered most in need of the intervention; the third section was excluded on this basis. Sixteen students from Grade 7-Mabini formed the experimental group and were taught summarizing using the Knowledge Web Strategy. Sixteen students from Grade 7-Luna formed the control group and received conventional lecture-based instruction, including teacher-led discussion and note-taking exercises without graphic organizers.

Instrumentation:

A teacher-made test, consisting of parallel pretest and posttest forms, was developed based

on the competencies of the Grade 7 English MATATAG Curriculum Guide related to comprehending and summarizing informational texts. Each form presented a reading passage and required students to produce a concise, coherent, and accurate written summary. A scoring rubric assessed accuracy of content, completeness of essential details, clarity and coherence, grammar and language use, and conciseness. The instrument and rubric were validated by three Master Teachers in English using a 5-point expert assessment checklist and obtained an overall mean rating of 4.43, interpreted as "very highly valid." Reliability was established through pilot testing with Grade 7 students not involved in the main study, yielding a reliability coefficient of r = 0.86.

Procedure:

After securing permission from the school head, the researcher grouped participants into the experimental and control groups and administered the pretest to both. During a one-week intervention period, the experimental group was taught to construct and use Knowledge Webs to organize main ideas and supporting details before writing summaries, while the control group received traditional lecture-based instruction on summarizing. Both groups then completed the parallel posttest. All test responses were scored using the validated rubric.

Statistical Treatment:

Descriptive statistics (mean, median, standard deviation, variance, skewness, kurtosis, range, and percentiles) described each group's pretest and posttest performance. Independent-samples t-tests compared the two groups at pretest and at posttest, while paired-samples t-tests compared each group's own pretest and posttest scores. All hypotheses were tested at the 0.01 level of significance using SPSS version 25.

Ethical Considerations:

Formal permission was obtained from the school head prior to data collection. Participation was voluntary and based on informed consent, with participants free to withdraw at any point without penalty. Student identities were kept confidential through the use of codes, and all data were stored securely and used solely for research purposes. The intervention was designed to avoid disrupting regular instruction and to cause no physical, emotional, or psychological harm to participants.

RESULTS AND DISCUSSION

This features the presentation, analysis of the data and interpretation of the findings gathered in this study. It is discussed in the following order: the performance of the Grade 7 students in English particularly on summarizing text and the significant difference exist between the performance of the Grade 7 under the experimental and control group.

Performance of the Grade 7 Students in Summarizing Text

The researcher used the results of the pre-test and post-test administered to the two groups of the Grade 7 students in Camantiles National High School during the conduct of experiment.

Performance of the Grade 7 in Pre-Test:

Table 1 presents the pre-test performance of both groups administered prior to the experimental intervention. The pre-test served to establish and compare the baseline performance levels of students before implementing the treatment. The results indicate that Grade 7-Luna (Control group) obtained a mean score of 10.6250 out of 20 points, while Grade 7-Mabini (experimental group) achieved a mean score of 10.4375. These comparable scores suggest that both groups demonstrated similar and relatively low initial performance levels before the experiment. With both groups scoring approximately 52% on the pre-test, which assessed the learning competency of summarizing text, the findings establish equivalent baseline conditions between the experimental and control groups. This results is synonymous to the study conducted by Prananda (2016) conducted a study on the students' ability in writing paragraphs using structure of the paragraph in argumentative essay by the sixth semester of English Study Program of Muhammadiyah University of Bengkulu. The findings revealed that the students' mean score performance in composing paragraph using structure of the paragraph in argumentative essay was qualified very poor.

Table 1: Performance of the Grade 7- Students in Pre-Test

Statistics	Control Group (Grade 7-Luna) n=16	Experimental Group (Grade 7-Mabini n=16
Mean	10.6250	10.4375
Median	11.0000	11.0000
Std. Deviation	1.31022	.89209
Variance	1.717	.796
Skewness	-.616	-.430
Kurtosis	.844	-.607
Range	5.00	3.00
75^{th} Percentile	11.0000	11.0000

The median score for both the control and experimental groups was 11.00, which closely aligns with their respective mean scores of 10.6250 and 10.4375. This proximity between the mean and median values suggests a fairly symmetrical distribution of pre-test scores. The symmetry is further confirmed by the computed skewness values of -0.616 for the control group and -0.430 for the experimental group. According to statistical convention, skewness values falling between -0.5 and 0.5 indicate a fairly symmetrical distribution, meaning that the scores were evenly distributed around the central tendency without significant bias toward either higher or lower values.

Additionally, the kurtosis values of 0.844 and -0.607 for the control and experimental groups, respectively, demonstrate a mesokurtic distribution pattern. This finding reinforces the interpretation of symmetry, as mesokurtic distributions are characterized by a normal, bell-shaped curve without extreme peaks or flat tails. The symmetrical nature of the pre-test score distribution, with most scores clustering around the center, provides further evidence that both groups exhibited similarly low performance levels prior to the intervention. This baseline equivalence is essential for ensuring the validity of subsequent comparisons between the experimental and control groups.

The measures of variability reveal notable differences in score dispersion between the two groups. The control group (Grade 7-Luna) demonstrated greater variability with a variance of 1.717 and a standard deviation of 1.31, indicating that scores deviated from the mean by approximately 1.31 points on average. In contrast, the experimental group (Grade 7-Mabini) exhibited less variability, with a variance of 0.796 and a standard deviation of 0.89, suggesting that their scores clustered more closely around the mean. This pattern of tighter score distribution in the control group is further evidenced by the range values: the control group had a range of 5.00 points compared to the experimental group's range of 3.00 points, indicating more consistent performance among students in Grade 7-Mabini during the pre-test.

The percentile analysis provides additional insight into the score distribution. The 75th percentile value of 11.00 for both groups indicates that 75% of students in each group scored at or below 11 points out of 20. Conversely, this means that only 25% of students achieved scores above 11 points, highlighting the overall low performance levels across both groups. The similarity in percentile distribution, despite differences in score variability, reinforces that both the experimental and control groups entered the study with comparable baseline competency in text summarization. These statistical indicators collectively demonstrate that while the control group showed slightly more homogeneous performance, both groups were appropriately matched for the experimental intervention.

The findings was supported by the study conducted by Asfah (2019) carried out an analysis of paragraph writing abilities of English Department Students at Universitas Negeri Makassar. This inquiry studies on writing skills as it is necessary for students to compose thesis in their final year. It purposes to determine the strengths and weaknesses of their paragraph composition seen from the elements of a paragraph. Dealing with findings, it found that their weaknesses were when composing an introductory paragraph, making their writing chronological, and writing a concluding sentence. Then their strengths were determined when composing the main sentences and the use of transitional signals.

As mentioned by, Said (2018), writing is generally seen as an important skill in the acquisition of English language, because through

effective writing English vocabulary and grammar can be strengthened and it assists the teachers and learners in the practice of teaching and learning English writing skills respectively. In Pakistani government schools, mainly at elementary level the English writing skills of elementary students are frighteningly poor and unsatisfactory.

Performance of the Grade 7 in Post-Test

After the one week of conducting experiment, the researcher administered a 20 points post-test on the two groups of Grade 7students to determine the effectiveness of using knowledge web in improving the writing skills of students in summarizing text as compared to lecture method.

Table 2: Performance of the Grade 7- Students in Post-Test

Statistics	Control Group (Grade 7-Luna) n=16	Experimental Group (Grade 7-Mabini n=16
Mean	15.3125	18.1250
Median	15.0000	18.0000
Std. Deviation	1.74045	1.74642
Variance	3.029	3.050
Skewness	-.030	-1.075
Kurtosis	-.594	.996
Range	6.00	6.00
75^{th} Percentile	17.0000	19.7500

Table 2 presents the post-test performance of both groups following one week of experimental intervention. The control group achieved a mean score of 15.31 out of 20 points, while the experimental group obtained a notably higher mean score of 18.13. These results demonstrate substantial improvement in both groups' ability to summarize text compared to their pre-test performance, with the control group advancing from 10.44 to 15.31 (a 4.87-point gain) and the experimental group progressing from 10.63 to 18.13 (a 7.50-point increase). More significantly, the experimental group's mean score exceeded that of the control group by 2.82 points, representing a 14% absolute difference in performance. This disparity suggests that students who received instruction using the knowledge web strategy demonstrated superior performance in text summarization compared to their counterparts taught through the traditional lecture method, with the experimental group achieving a 70.6% improvement rate versus the control group's 46.8% gain. As mentioned by Building on this, Selevičienė (2023) highlighted mind mapping as a powerful technique for ESL and ESP learners, aiding in comprehension and writing. Observing student-generated maps allows teachers to assess understanding and adjust strategies, reinforcing summarization skills.

The same context on the study conducted by Barrantes Torres (2015) demonstrated that partially completed graphic organizers used during reading enable students to identify main ideas more effectively. The study emphasized that when learners interact with organizers during reading, they actively process information, which leads to better recall and more accurate summaries. This approach also encourages students to focus on essential details rather than peripheral content, making summarization more precise.

The measures of central tendency and distribution reveal important characteristics of the post-test scores. The control group's median of 15.00 closely approximated its mean of 15.31, with a skewness value of -0.030 indicating a nearly symmetrical distribution. Similarly, the experimental group's median of 18.00 aligned with its mean of 18.13, though the skewness value of -1.075 suggests a moderate negative skew, with most scores concentrated at the higher end while a few lower scores extended the distribution's tail. Both groups exhibited similar variability, with the control group showing a variance of 3.029 (SD = 1.74) and the experimental group displaying a variance of 3.050 (SD = 1.75), indicating that scores in both groups deviated approximately 1.7 to 1.8 points from their respective means. The kurtosis values of -0.594 for the control group and 0.996 for the experimental group indicate mesokurtic distributions, suggesting that both groups' scores followed relatively normal distribution patterns without extreme outliers or unusual clustering.

This is synonymous to the study conducted by Santika *et al.,*(2020) conducted a systematic

review showing that graphic organizers help learners separate relevant details from extraneous information, store vocabulary, and summarize texts confidently. Their analysis revealed that students using organizers developed stronger text-structure awareness, which is essential for identifying main ideas and supporting details in summarization tasks. Similarly, Usman *et al.,*(2023) reported that Nigerian students exposed to graphic organizers in science classes exhibited improved academic performance and interest. The study attributed these gains to the visual clarity provided by organizers, which simplifies complex scientific concepts and aids in summarizing technical content.

The computed range of 6.00 points for both groups indicates comparable score variability between the highest and lowest performers in each group. This similarity in range, despite the difference in mean scores, suggests that both instructional approaches produced relatively consistent results within their respective groups. The experimental group's scores, however, were consistently shifted toward higher performance levels, as evidenced by the higher central tendency measures. This pattern indicates that the knowledge web strategy not only elevated the overall group performance but did so in a manner that maintained relatively uniform improvement across students of varying ability levels.

Percentile analysis provides further insight into the performance differences between groups. The 75th percentile for the control group was 17.00, meaning that 75% of students scored at or below this value, with only 25% achieving scores of 17 points or higher. In contrast, the experimental group's 75th percentile was substantially higher at 19.75, indicating that three-quarters of these students scored below this elevated threshold, with 25% achieving near-perfect or perfect scores. This notable difference in the upper quartile performance a 2.75-point gap at the 75th percentile reinforces the finding that the knowledge web approach not only improved average performance but also enabled a greater proportion of students to achieve higher levels of mastery in text summarization. The consistency of superior performance across multiple statistical indicators strengthens the evidence that the knowledge web strategy represents a more effective instructional approach for developing summarization skills among Grade 7 students.

As elaborated by Cala (2019) that integrating graphic organizers into science lessons significantly enhanced conceptual understanding and analytical skills. Complementing this, a meta-analysis by IARE (2018) confirmed that graphic organizers improve comprehension and retention by enabling learners to visualize connections and hierarchies within texts.

Also, Asian studies further reinforce these findings. Shi *et al.,*(2023) conducted a meta-analysis on mind mapping-based instruction, finding positive effects on cognitive learning outcomes across subjects. Lower-grade students benefited most, suggesting strong potential for Grade 7 summarization tasks

Significance of Difference on the Performance of the Grade 7 Students

The comparison of the performance of the control and experimental group established as presented in Table 3 and 4 using the results of pre-test and post-test.

Significance of Difference of the Performance of Grade 8 in Pre-test

The results of the 20 points pre-test were used by the researcher as the baseline of establishing that the two groups have the same performance in the concepts on summarizing text.

Table 3: Significance of Difference of the Performance of the Grade 7 Students in Pre-Test

Group	n	Mean	T-Value	Sig	Decision
Control	16	10.6250	0.473	0.640	Accept H_0
Experimental	16	10.4375			

Table 3 presents the independent samples t-test results comparing the pre-test performance of both groups. The analysis yielded a t-value of 0.473 with a significance level of $p = 0.640$ ($p > 0.01$), leading to acceptance of the null hypothesis. This finding confirms that no statistically significant difference existed between the experimental and control groups' baseline performance in text summarization prior to the intervention. The comparable pre-test means demonstrate that both groups possessed equivalent foundational competencies at the outset of the study, thereby establishing the validity of subsequent comparisons between the two groups following the experimental treatment.

Similarly, Novariana et al (2018), argue about the same issues of the students they encounter while writing in a second language. Students' grammatical and syntactical mistakes can be observed easily through their writing content at various levels in the class. Sentence structure mistakes are also the major mistakes students commit in their writing. The use of appropriate words in writing seems very difficult for elementary-level students who write in a second language. Due to limited vocabulary, the majority of the learners are unable to use proper words in their writing and these issues slow down their writing expertise in their academic learning of writing.

As mentioned by Aranda (2022) explored challenges in the new senior high school English curriculum, revealing that students struggle with summarizing due to insufficient skills and confidence (Aranda, 2022). Lastly, Uddin and Naparota (2025) assessed writing skills of senior high school students in Zamboanga del Norte and found persistent grammar and organization issues, indirectly pointing to the need for summarization training to enhance writing proficiency.

Significance of Difference of the Performance of Grade 7 in Post-test

The results of the 20 points post-test were used by the researcher to determine if there is a significant effect of using knowledge web in improving the performance of the students in summarizing text as compared to the performance of the students exposed in traditional lecture method.

Table 4: Significance of Difference of the Performance of the Grade 7- Students in Post -Test

Group	n	Mean	T-Value	Sig	Decision
Control	16	15.3125	4.563	0.000	Reject H_0
Experimental	16	18.1250			

Table 4 presents the independent samples t-test comparing the post-test performance of both groups. The computed t-value of 4.563 with a significance level of $p = 0.000$ ($p < 0.01$) leads to rejection of the null hypothesis, confirming a statistically significant difference between the experimental and control groups. The experimental group achieved a mean score of 18.13, surpassing the control group's mean of 15.31 by 2.82 points. This significant difference demonstrates that students who learned through the knowledge web strategy outperformed their classmates who received traditional lecture-based instruction, providing evidence that the knowledge web approach is a more effective method for teaching text summarization skills to Grade 7 students.

As mentioned by Santika *et al.,*(2020) conducted a systematic review showing that graphic organizers help learners separate relevant details from extraneous information, store vocabulary, and summarize texts confidently. Their analysis revealed that students using organizers developed stronger text-structure awareness, which is essential for identifying main ideas and supporting details in summarization tasks. Similarly, Usman *et al.,*(2023) reported that Nigerian students exposed to graphic organizers in science classes exhibited improved academic performance and interest. The study attributed these gains to the visual clarity provided by organizers, which simplifies complex scientific concepts and aids in summarizing technical content.

Also, in the American context, Merchie & Van Keer (2016) examined graphical summarization strategies in late elementary education. Their quasi-experimental study revealed that student-generated mind maps led to the greatest gains in summarization quality, underscoring the importance of active engagement.

Moreover, De Jesus (2024) confirmed mind mapping's significant effect on critical thinking and organization, which directly supports summarization skills. Collaborative and digital mind mapping were particularly effective.

Performance in Pre-Test and Post-Test of the Control Group

The results of the pre-test and post-test of the experimental group was tabulated to compare if there is a significant difference between the performance the Grade 7 students presented in table 5.

Table 5: Comparison of the Performance in Pre-Test and Post-Test of the Control Group

Variables	N	Mean	T-Value	Sig	Decision
Pre-Test	16	10.6250	8.843	0.000	Reject H_0
Post-Test		15.3125			

Table 5 displays the paired samples t-test results for the control group, revealing a t-value of 8.843 with a p-value of 0.000 ($p < 0.01$), which provides sufficient grounds to reject the null hypothesis. These statistical findings confirm a statistically significant improvement in the control group's performance between the initial and final assessments. The post-test mean score of 15.31 notably exceeded the pre-test mean of 10.63, demonstrating a 4.68-point gain in performance. This evidence indicates that Grade 7-Luna students who received traditional lecture-based instruction showed measurable enhancement in their text summarization abilities following the one-week intervention period.

Performance in Pre-Test and Post-Test of the Experimental Group

The results of the pre-test and post-test of the control group was tabulated to compare if there is a significant difference between the performance the Grade 7-Mabini students presented in table 6.

Table 6: Comparison of the Performance in Pre-Test and Post-Test of the Experimental Group

Variables	n	Mean	T-Value	Sig	Decision
Pre-Test	16	10.4375	15.448	0.000	Reject H_0
Post-Test		18.1250			

Table 6 presents the paired samples t-test results examining the experimental group's performance across the pre-test and post-test assessments. The analysis yielded a t-value of 15.448 with a significance level of $p = 0.000$ ($p < 0.01$), providing compelling statistical evidence to reject the null hypothesis. The substantial difference between the pre-test mean of 10.44 and the post-test mean of 18.13 represents a 7.69-point improvement, or approximately 74% growth from baseline performance. These findings conclusively demonstrate that students in the experimental group who received instruction through the knowledge web strategy experienced statistically significant improvement in their text summarization skills. The notably high t-value indicates not only that the improvement was significant, but also that it was consistent across participants, suggesting that the knowledge web approach effectively enhanced summarization competency among Grade 7 students over the one-week intervention period.

As mentioned by Rozariah *et al.,*(2021) in Malaysia revealed that students using bubble and tree maps for summary writing scored higher than those employing conventional methods. The study explained that these organizers guide learners in categorizing information and linking concepts, which results in more structured and coherent summaries. Likewise, Zainudin *et al.,*(2023) demonstrated that learners who utilized graphic organizers achieved superior organization and content scores in writing tasks. Their research emphasized that organizers serve as planning tools, enabling students to outline their summaries before writing, which improves clarity and logical flow.

Also, Brillo *et al.,*(2024) investigated digital mind mapping among Grade 7 students in Bukidnon. Results showed significant improvement in immediate achievement and retention, indicating that mind mapping enhances comprehension and summarization.

Mean Difference of the Performance of the Grade 7 Students

The mean difference on the performance of students was tabulated by the researcher using the result of the pre-test and post-test of the experimental and control groups.

Mean Difference of the Performance of the Students

The mean difference of the performance of the Grade 7 students in summarizing text was tabulated and presented in table 7 .

Table 7: Mean Difference on Performance of Grade7 Students

Group		Mean	Frequency	Mean Difference	T-Value	Sig. Value	Decision
Control	Luna_ Pre	10.6250	16	4.68750	8.843	0.000	Reject H_0
	Luna_ Post	15.3125					
Experimental	Mabini_ Pre	10.4375	16	7.68750	15.448	0.000	Reject H_0
	Mabini_ Post	18.1250					

Table 7 presents the paired samples t-test results comparing pre-test and post-test performance for both groups. The control group demonstrated a mean difference of 4.69 points between pre-test (M = 10.44) and post-test (M = 15.31), indicating measurable improvement in text summarization skills following one week of instruction using the traditional lecture method. The computed t-value of 8.843 with a significance level of p = 0.000 (p < 0.01) provides strong statistical evidence to reject the null hypothesis. This finding confirms that students in the control group experienced statistically significant improvement in their ability to summarize text, demonstrating that even conventional instructional approaches can yield meaningful learning gains when systematically implemented.

The experimental group exhibited substantially greater improvement, with a mean difference of 7.50 points between pre-test (M = 10.63) and post-test (M = 18.13). This represents a 60% increase from baseline performance, considerably exceeding the control group's 45% improvement rate. The paired samples t-test yielded a t-value of 15.448 with a significance level of p = 0.000 (p < 0.01), leading to rejection of the null hypothesis. These results provide robust statistical evidence that students exposed to the knowledge web approach achieved significant improvement in their text summarization competency. The notably higher t-value for the experimental group (15.448 vs. 8.843) suggests not only that both interventions were effective, but that the knowledge web strategy produced substantially larger and more consistent learning gains compared to the traditional lecture method.

This finding was supported by Santiago (2018) stated that visual mapping, including mind maps and concept maps, provides learners with a structured way to organize and synthesize ideas. It transforms linear text into interconnected nodes, fostering comprehension and recall. This approach aligns with cognitive theories emphasizing active engagement and meaningful learning. Building on this cognitive foundation, Link (2023) emphasizes that graphic organizers serve as visual frameworks that help learners identify relationships among concepts, simplify complex information, and improve comprehension. They are grounded in Ausubel's theory of meaningful learning, which stresses linking new knowledge to prior knowledge.

To maximize these benefits, Fisher and Schumaker (2019) stated that certain guiding principles must be considered when integrating graphic organizers into instruction. For these tools to be effective, they must be clear, coherent, and consistently integrated into lessons. Teaching students how to use them is essential for internalizing organizational skills. Beyond instructional clarity, Wills and Ellis (2017) explain that cognitive theories such as cognitive load theory further justify the use of graphic organizers. These tools reduce cognitive load by visually presenting relationships among ideas, freeing working memory for higher-order thinking. This principle is supported by schema theory and dual coding theory, which emphasize visual-verbal integration.

Summary of the Findings

On the basis of the statistical analysis, the researcher points the following findings:

1.The pre-test results established equivalent baseline performance between Grade 7-Luna (control group) and Grade 7-Mabini (experimental group) prior to the intervention. Both groups demonstrated similarly low initial competency in text summarization, with mean scores of 10.63 and 10.44 out of 20 points respectively, representing approximately 52% accuracy. The median score of 11.00 for both groups closely aligned with their means, indicating fairly symmetrical distributions. This symmetry was confirmed by skewness values (-0.616 and -0.430) and kurtosis values (0.844 and -0.607) that fell within acceptable ranges for normal distribution, demonstrating that scores clustered around the

center without extreme outliers or significant bias toward higher or lower values.

Analysis of variability measures revealed some differences in score dispersion between groups. The control group showed greater variability (variance = 1.717, SD = 1.31, range = 5.00) compared to the experimental group (variance = 0.796, SD = 0.89, range = 3.00), indicating that Grade 7-Mabini students demonstrated more consistent performance with scores clustering more tightly around the mean. Despite these differences in spread, both groups maintained comparable central tendencies, suggesting that the control group simply had a wider range of student abilities while the experimental group was more homogeneous in their baseline performance.

Percentile analysis reinforced the finding of equivalent baseline competency between groups. The 75th percentile value of 11.00 for both groups indicated that three-quarters of students scored at or below this level, with only 25% achieving higher scores. This similarity in percentile distribution, combined with the comparable means and medians, confirms that both groups entered the study with matching levels of text summarization proficiency. The statistical evidence collectively demonstrates that despite minor differences in score variability, both groups were appropriately matched for the experimental intervention, establishing a valid foundation for subsequent comparisons of instructional method effectiveness.

Following one week of experimental intervention, both groups demonstrated significant improvement in text summarization skills, though the experimental group showed markedly superior results. The control group's mean score increased from 10.44 to 15.31 (a 4.87-point or 46.8% gain), while the experimental group advanced from 10.63 to 18.13 (a 7.50-point or 70.6% gain). The experimental group's post-test mean of 18.13 exceeded the control group's 15.31 by 2.82 points, representing a 14% absolute performance difference. Both groups exhibited similar score variability (SD ≈ 1.7-1.8 points, range = 6.00) and relatively normal distributions, with the control group showing near-perfect symmetry (skewness = -0.030) and the experimental group displaying a moderate negative skew (skewness = -1.075) indicating concentration toward higher scores. These statistical patterns suggest that while both instructional methods were effective, the knowledge web strategy produced substantially greater learning gains while maintaining consistent improvement across students of varying ability levels.

Percentile analysis further highlighted the experimental group's superior performance, particularly among higher-achieving students. The 75th percentile for the control group was 17.00, indicating that only 25% of students scored above this level, whereas the experimental group's 75th percentile reached 19.75, with a quarter of students achieving near-perfect or perfect scores. This 2.75-point gap at the upper quartile demonstrates that the knowledge web approach not only elevated average performance but also enabled a greater proportion of students to achieve mastery-level competency in text summarization. The consistency of superior outcomes across multiple statistical indicators—including means, medians, percentiles, and improvement rates—provides compelling evidence that the knowledge web strategy represents a more effective instructional approach than the traditional lecture method for developing summarization skills among Grade 7 students.

2. The findings revealed that there was no significant difference in the pre-test performance of the experimental and control groups prior to the implementation of the intervention. The independent samples t-test yielded a computed t-value of 0.473 with a p-value of 0.640 ($p > 0.01$), leading to the acceptance of the null hypothesis. This indicates that both groups possessed comparable levels of text summarization skills at the beginning of the study. The similarity in their initial performance established a fair basis for comparison and suggested that any subsequent differences in achievement could be attributed to the instructional strategies employed during the intervention rather than to pre-existing differences in ability.

In terms of the post-test performance, the results showed a significant difference between the two groups. The statistical analysis produced a t-value of 4.563 with a p-value of 0.000 ($p < 0.01$), resulting in the rejection of the null hypothesis. The experimental group obtained a mean score of 18.13, which was higher than the control group's mean score of 15.31. This difference indicates that students exposed to the Knowledge Web Strategy achieved better learning outcomes in text summarization than those who were taught using the traditional lecture method. The findings suggest that the Knowledge Web Strategy provided learners with a more effective means of organizing and processing information, thereby enhancing their ability to summarize texts accurately and meaningfully.

The comparison of the pre-test and post-test scores of the control group also revealed a

significant improvement in performance. The paired samples t-test generated a t-value of 8.843 with a p-value of 0.000 ($p < 0.01$), which led to the rejection of the null hypothesis. The mean score increased from 10.63 in the pre-test to 15.31 in the post-test, reflecting a gain of 4.68 points. This finding demonstrates that students who received instruction through the traditional lecture method were able to improve their text summarization skills over the course of the intervention period. It suggests that regular classroom instruction remains beneficial in enhancing learners' comprehension and summarizing abilities.

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Similarly, the comparison of the pre-test and post-test scores of the experimental group showed a highly significant improvement. The paired samples t-test yielded a t-value of 15.448 with a p-value of 0.000 ($p < 0.01$), resulting in the rejection of the null hypothesis. The mean score increased from 10.44 in the pre-test to 18.13 in the post-test, representing a gain of 7.69 points. This substantial increase indicates that the Knowledge Web Strategy had a strong positive effect on students' text summarization skills. The magnitude of improvement suggests that the strategy not only enhanced learners' understanding of the text but also helped them identify, organize, and synthesize key ideas more effectively.

When the mean gains of the two groups were compared, the experimental group demonstrated greater improvement than the control group. While both groups showed statistically significant progress from pre-test to post-test, the experimental group obtained a higher mean gain of 7.69 points compared with the control group's gain of 4.68 points. This difference in improvement provides further evidence that the Knowledge Web Strategy was more effective than the traditional lecture method in developing the text summarization skills of Grade 7 students. The findings indicate that the use of visual and structured learning tools may contribute to deeper understanding and more meaningful learning outcomes. Furthermore, the findings highlight the potential of learner-centered and visually structured instructional strategies in promoting greater engagement and improved academic performance among Grade 7 students.

Conclusions

In light of the findings of this study, the following conclusions are drawn:

The pre-test results revealed that there was no significant difference between the performance of the experimental and control groups in text summarization. This indicates that both groups had comparable levels of prior knowledge and skills before the conduct of the intervention, providing a fair basis for comparison.

The post-test results showed significant improvement in the performance of both groups. However, the experimental group, which was exposed to the Knowledge Web Strategy, obtained a higher mean score and a greater mean gain than the control group, which was taught using the traditional lecture method. This indicates that while both instructional approaches contributed to students' learning, the Knowledge Web Strategy was more effective in enhancing students' text summarization skills.

The comparison of the pre-test and post-test scores confirmed that the experimental group demonstrated a greater increase in performance than the control group. The substantial improvement observed among students exposed to the Knowledge Web Strategy suggests that the use of visual and organized representations of ideas helped learners identify key information, understand relationships among concepts, and develop clearer and more concise summaries.

Therefore, it is concluded that the Knowledge Web Strategy is an effective instructional intervention for improving the text summarization skills of Grade 7 students and produces better learning outcomes than the traditional lecture method when used in teaching text summarization.

Recommendations

On the basis of the findings and conclusions of the study, the following recommendations are offered:

1. English teachers in the Schools Division of Urdaneta City may consider using the Knowledge Web Strategy as an alternative instructional approach in teaching text summarization. The findings of the study suggest that this strategy can support the development of students' summarizing skills and contribute to improved academic performance.
2. Teachers may explore the integration of the Knowledge Web Strategy into writing and reading instruction, particularly in lessons that require learners to organize and synthesize information. Its use may help students better understand relationships among ideas and develop clearer and more concise summaries.

3. School administrators and educational leaders may consider providing opportunities for professional learning related to the use of the Knowledge Web Strategy and similar instructional approaches. Such initiatives may assist teachers in enhancing their instructional practices and in identifying effective strategies that support student learning outcomes.

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