Effectiveness of Mnemonic Method on Students' Language Information Retention

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Abstract. This study aimed to investigate how mnemonic methods, specifically acronyms and acrostics, affect the retention of language information among second-year BSED-ENGLISH students at a state university in Camarines Sur. The research questions focused on the effects of acronyms and acrostics on retention, the effectiveness of mnemonics in improving retention, and differences in post-test results between the comparison and experimental groups, while controlling for pre-test scores. The participants are the 37 respondents from BSED-English 2A and 33 respondents from BSED-English 2B taking the Technical Writing course. A quasi-experimental design used test questionnaires as the primary tool. Statistical methods, including frequency counts, percentages, means, and ANCOVA, were used to analyze the data, revealing significant benefits of mnemonic strategies for short- and long-term retention. The findings emphasized the importance of mnemonics in enhancing language retention. The findings revealed that students exposed to mnemonic strategies, particularly acronyms and acrostics, showed significantly higher retention than those taught through conventional methods. Post-test results indicated that 70.27% of students in the experimental group achieved very high retention, while none fell into low or very low categories. ANCOVA analysis confirmed a statistically significant difference in post-test scores between groups, with a large effect size (partial eta squared = 0.873), affirming the effectiveness of mnemonic methods in enhancing both short- and long-term retention of language information. Educators are urged to incorporate mnemonic techniques to improve retention. Future research could explore the long-term impact of mnemonics across subjects and student groups.

INTRODUCTION

The pursuit of knowledge is a continuous journey, and retaining information is fundamental to this process (Ambrose et al., 2010). According to Robson (2011), the oldest known memory aid is the method of loci, invented by the ancient Greeks at least 2,000 years ago. In the educational landscape, students constantly explore innovative approaches to improve their learning experiences and academic performance (Pintrich & Zusho, 2002). Teachers may adopt a purposeful approach to the teaching of metapragmatic competence and language-learning strategies (Ocampo, 2023).

This study focuses on the effectiveness of mnemonic methods on information retention among BSED-English students. The study was conducted at a state university in Camarines Sur with a specific emphasis on the Technical Writing course. Students often struggle to retain

complex language concepts and technical terminology, which are essential for mastering the subject. These challenges include difficulty recalling and organising ideas effectively, and applying learned concepts in practical writing tasks. This research aimed to evaluate the impact of mnemonic strategies on students' performance before and after their implementation. The researcher employed a quasi-experimental design with pre- and post-test assessments to evaluate the effectiveness of mnemonic methods in an educational context. Language development and teaching within the field of education is the context of the study. To explore the use of mnemonic devices in enhancing information retention, this research aimed to provide insights that could benefit both educators and students in improving learning outcomes in language-related subjects. While previous studies have explored the general benefits of mnemonic strategies across various disciplines, this research specifically focuses on their application within a Technical Writing context among BSED-English students. Unlike broader investigations into memory aids, this study employs a quasi-experimental design to directly compare traditional instruction with mnemonic-enhanced teaching. It contributes to the field of education by offering empirical evidence on the effectiveness of acronyms and acrostics in improving language retention, and by providing practical insights for curriculum development and instructional strategies tailored to language education. Overall, it delves into the application of mnemonic techniques as a potential tool to enhance students' retention of information in language education, with implications for instructional strategies and curriculum development in the field. By shedding light on the effectiveness of mnemonic methods, particularly acronyms and acrostics, this research contributes to the broader discussion on effective learning methodologies.

One such method gaining traction is the use of mnemonics, a memory aid designed to enhance information recall (Rawson & Dunlosky, 2013). The term "mnemonic" has its origins in ancient Greece, stemming from the word μνημονικός (mnēmonikos), which translates to "of memory" or "relating to memory" (Nolen, 2024). This connection extends to Mnemosyne, the Greek goddess of memory, with both terms rooted in μνήμη (mnēmē), meaning "remembrance." Mnemonic methods exploit our brain's natural information storage processes (Rawson & Dunlosky, 2013). Mnemonic devices are among the most essential methods used in education (Mostafa & El Midany, 2017).

Mnemonics encompass various techniques, with acronyms and acrostics being particularly noteworthy for their letter-based approach. For instance, in the Technical Writing subject, to remember the types of writing, students could use the acronym "JEETC," which stands for Journalism, Expressive, Expository, Technical, and Creative writing. These techniques work by creating a memorable phrase or word, making it easier to recall the list. The trick is to make the acrostic or acronym easy to remember. Acronyms, according to the Cambridge Dictionary (2023), are abbreviations formed from the first letters of words in a phrase, pronounced as a single word. Using this strategy, learners create a word or phrase using the first letter of each item they need to remember. Acrostics, as defined by Encyclopedia Britannica (2024), are compositions, often in verse, in which specific letter sets (such as initial or final letters) form a word or phrase. This method involves crafting a sentence or phrase where each word starts with the initial letter of the information. As mentioned by Mastropieri (2000), these strategies can significantly improve verbal memory for academic content, leading to increased learning and higher test scores for students with special needs. According to The IRIS Center (2013), one of the best ways to help students overcome this challenge is to teach them mnemonic strategies, also called memory-enhancing strategies. According to Jennifer et al. (2013), an online survey examined psychology students' metacognitive awareness and self-reported behaviors regarding mnemonics. It revealed that mnemonics are strategies that can enhance the learning and memory of course material.

The study "Working Memory Training: Assessing the Efficiency of Mnemonic Strategies" has shown the beneficial effects of applying mnemonic strategies on working memory tasks, particularly on more challenging tests (Santo et al., 2020). Recent research provides empirical support for the use of mnemonics in learning. For instance, a study by Radović and Manzey (2019) investigated the impact of a mnemonic acronym on learning, execution, and resilience to interruptions during an eight-step procedural task. Their findings revealed that the mnemonic acronym significantly enhanced learning, bolstering the effectiveness of mnemonic devices as learning tools. According to the study of Atimi and Afandi (2023), mnemonic methods are procedures considered effective for improving students' learning outcomes and memory. According to Kurniarahman's (2023) research, the Mnemonic Keyword was found to be interesting and unique to students during the vocabulary memorization process, thereby making them more enthusiastic about memorizing English vocabulary. By highlighting the effectiveness of mnemonic methods, particularly acronyms and acrostics, this research contributes to the broader discussion on effective learning methodologies. Unlike previous studies that focused on general applications of mnemonics across various subjects, this study specifically investigates their impact on language information retention in the Technical Writing course among BSED-English students. It uniquely applies a quasi-experimental design to compare traditional instruction with mnemonic-enhanced teaching, offering targeted insights into how these strategies affect retention in a specialized academic context. This focus on a specific student group and subject area highlights the study's novelty and fills a gap in existing research on mnemonic applications in language education.

Teachers may use mnemonic methods to guide their presentation of materials so that students can easily absorb the information. The use of this instructional strategy does not require extensive planning or a wealth of additional materials (Mastropieri & Scruggs, 1998). According to Conderman (2020), teachers can infuse several types of mnemonics within their instruction to support student learning. Dave and Awasthi (2019) discovered that mnemonics work for most students and have become a valuable tool in their classroom. Simanjuntak (2017) noted that mnemonic strategies have been of great help across various curriculum areas and for students of all ages and characteristics. According to the study by Bakken and Simpson (2011), mnemonic methods involve linking unfamiliar information to familiar knowledge through visual images or letter/word combinations. Hence, they speed up learning, enhance meaningfulness, reduce confusion, and promote long-term retention of information.

Method

The study employed a quasi-experimental research design, incorporating a pre-test and post-test approach to evaluate the effectiveness of mnemonic methods on information retention among BSED-English students. This design aimed to assess the impact of mnemonic strategies within an educational setting, ensuring that data collection, analysis, and interpretation were systematically aligned to produce valid findings. The instruments used in this study were test questionnaires developed in accordance with the Table of Specifications (TOS). These questionnaires served as measurement tools to assess respondents' memory retention, specifically regarding the Technical Writing topics covered in the course. To ensure the reliability and validity of the collected data, the instruments were validated prior to use.

Data collection occurred in March and April 2024, during which students in BSED English 2A and 2B were randomly assigned to either the experimental or comparison group. The study employed a quasi-experimental research design, incorporating a pre-test and post-test approach to evaluate the effectiveness of mnemonic methods on information retention among BSED-

English students. A total of 70 participants were involved: 37 students from BSED-English 2A in the experimental group and 33 students from BSED-English 2B in the comparison group. The inclusion criteria required participants to be officially enrolled in the Technical Writing course during the second semester of the academic year and to complete both the pre-test and post-test assessments. Students who were not enrolled in the course or who failed to complete either assessment were excluded from the study. Each participant responded to 50 standardized questions in both the pre-test and post-test, with each assessment session lasting 1 hour. The pre-test was administered to gauge initial retention abilities before any instructional intervention. The experimental group participated in an 18-hour lecture series led by the Technical Writing instructor that emphasized mnemonic techniques, whereas the comparison group received traditional lectures without mnemonic strategies. After the instructional sessions, both groups completed the post-test using the same questionnaires as in the pre-test to measure changes in information retention.

For data analysis, various statistical methods were employed to ensure the accuracy and robustness of the findings. Frequency counts, percentages, and means were calculated to describe the distribution and central tendency of retention scores within and between the groups. The frequency count counted the number of participants in specific retention categories, while percentages provided the relative proportions of students in each category, enabling a clear comparison of retention levels. The mean scores offered a measure of average performance for each group, providing insight into overall retention performance. To determine whether the mnemonic techniques significantly affected information retention, Analysis of Covariance (ANCOVA) was used. To ensure the reliability and validity of the instruments used, the test questionnaires were subjected to expert validation prior to implementation. The Table of Specifications (TOS) guided alignment of items with learning objectives, and content validity was confirmed through evaluation by subject-matter experts in Technical Writing. Their feedback ensured that the questions accurately measured the intended retention outcomes, thereby strengthening the credibility of the data collected and the overall integrity of the study's findings. ANCOVA allowed the researchers to compare post-test scores between the comparison and experimental groups while controlling for pre-test scores, thereby isolating the mnemonic strategies' effect and ensuring valid conclusions about their effectiveness.

RESULT AND DISCUSSION

1. **Level of information retention of the comparison and experimental group based on the result of the pre-test**

This section uses frequency counts, percentages, and means to present the initial retention levels of students prior to the application of mnemonic methods, with the pre-test serving as a baseline for comparison.

Table 1 shows the initial retention levels of students in both the comparison and experimental groups before the implementation of mnemonic techniques. In the comparison group, which included 33 students, a significant majority (48.48%, or 16 students) exhibited low information retention. In contrast, the experimental group, comprising 37 students, demonstrated a more diverse distribution of retention levels. Specifically, 27.03% (10 students) in the experimental group achieved high retention, while 45.95% (17 students) had moderate retention. These results indicate that the experimental group had a broader range of information retention levels compared to the comparison group before the intervention.

The result above indicates that there may be differences in study habits or learning abilities between the two groups. The experimental group shows a higher percentage of students with

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good and moderate retention levels, suggesting they may have had a better understanding of the subject matter or were more adept at retaining information prior to the intervention.

The pre-test results play a key role in evaluating the effectiveness of mnemonic methods in improving information retention. They provide a reference for assessing how effectively these techniques enhance retention in both groups.

Additionally, the research by Siagian et al. (2023) in the Equator Science Journal supports the idea that mnemonic devices can enhance long-term memory retention among learners. This finding corresponds with the observed advantage in the experimental group's pre-test performance, which was categorized as moderate information retention. The results indicate that mnemonic methods have the potential to enhance students' retention, underscoring the importance of integrating these strategies into educational practices to improve learning outcomes.

Table 1. Level of information retention of the comparison and experimental group based on the result of the pre-test

Level	Comparison		Experimental	
	Frequency (N=33)	*Percent (%)*	*Frequency (N=37)*	*Percent (%)*
High	1	03.03	10	27.03.00
Moderate	14	42.42.00	17	45.95
Low	16	48.48.00	8	0,91805556
Very Low	2	06.06	2	05.41
	Average Performance	**Interpretation**	**Average Performance**	**Interpretation**
	21	*Moderate*	*24.59.00*	*Moderate*
Standard Deviation	*06.13*		*08.09*	

In summary, Table 1 illustrates the initial disparities in information retention levels between the comparison and experimental groups, showing the potential of mnemonic methods to strengthen students' retention skills. This lays the groundwork for further investigation into the effects of mnemonic techniques on information retention in educational contexts and emphasizes the importance of using mnemonic strategies to enhance learning outcomes.

2. Level of information retention of the comparison and experimental group based on the result of the post-test

This section outlines the perceived retention levels of students following the application of mnemonic methods.

Table 2. Level of information retention of the comparison and experimental group based on the result of the post-test

Level	Comparison		Experimental	
	Frequency (N=33)	*Percent (%)*	*Frequency (N=37)*	*Percent (%)*
Very High	1	0,13194444	26	70.27.00

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High	5	13.51	11	29.73
Moderate	12	32.43.00	0	00.00
Low	12	32.43.00	0	00.00
Very Low	3	08.11	0	00.00

	Average Performance	Interpretation	Average Performance	Interpretation
	0,94236111	*Moderate*	42.59.00	*Very High*
Standard Deviation	08.35		*04.25*	

Table 2 displays the post-test results for both the comparison and experimental groups after the implementation of these mnemonic techniques. The comparison group, comprising 33 students, showed lower performance, with the majority falling into the moderate to very low retention categories. Specifically, only 13.51% (5 students) in the comparison group achieved high retention, while 32.43% (12 students) demonstrated moderate retention levels. The experimental group, consisting of 37 students, shows a great enhancement in information retention. A remarkable 70.27% (26 students) in the experimental group attained very high retention, and an additional 29.73% (11 students) achieved high retention. None of the students in the experimental group was categorized as having moderate, low, or very low retention. The average performance of the comparison group remained moderate, highlighting a clear difference in retention between the two groups after the mnemonic intervention.

The improvement in information retention observed in the experimental group following the intervention is consistent with Radović and Manzey's (2019) findings regarding mnemonic acronyms. Their research demonstrated that participants who used mnemonic devices were more proficient at learning task sequences and showed greater resilience to interruptions, suggesting that these techniques improve both initial learning and information recall. The improvement in post-test scores for the experimental group underscores the effectiveness of mnemonic strategies in enhancing retention and academic performance. These findings highlight the need to integrate mnemonic techniques into educational practices to foster long-term retention of information among students and optimize their learning.

3. The difference between the post-test results of the comparison and experimental groups after controlling for their pre-test result

The ANCOVA results presented in Table 3 provide a statistical comparison of post-test scores between the comparison and experimental groups, controlling for pre-test scores.

Table 3. The difference between the post-test results of the comparison and experimental groups after controlling for their pre-test result

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	9520.092[a]	2	4760.046	409.006	.000	.924
Intercept	1770.335	1	1770.335	152.116	.000	.694
Pre-test	2100.138	1	2100.138	180.454	.000	.729
Method	5377.041	1	5377.041	462.021	.000	.873
Error	779.751	67	11.638			
Total	85937.000	70				

| **Corrected Total** | 10299.843 | 69 |

a. R Squared = .924 (Adjusted R Squared = .922)
b. Computed using alpha = .05

The statistical analysis revealed a gap between the two groups in information retention following the intervention with mnemonic methods. The high F-value of 462.021 and a p-value of 0.000 indicate that the null hypothesis can be rejected, underscoring the substantial difference in post-test performance between the comparison and experimental groups. Furthermore, the large effect size (partial eta squared = 0.873) underscores the considerable impact of the reading method (conventional vs. mnemonic) on students' retention.

These findings are consistent with earlier research, including Hill's (2022) study, which emphasized the beneficial effects of mnemonic devices on vocabulary retention among ESL students. Hill highlighted the importance of tailoring mnemonic techniques to bridge the gap between a student's native and target languages, suggesting that personalised strategies can significantly enhance their effectiveness. This highlights the need to adapt mnemonic approaches to address the specific needs of individual learners, thereby maximising the benefits of these interventions in educational contexts.

The results carry implications for teaching practices, illustrating that mnemonic methods can effectively enhance memory retention. It shows that, in situations where students are required to quickly absorb large volumes of information, integrating these techniques can facilitate learning and promote long-term retention. By employing mnemonic strategies, educators can create engaging learning environments that improve information recall.

In conclusion, the findings presented in Table 3 illustrate the significant impact of mnemonic methods, particularly acronyms and acrostics, on students' ability to retain language information. The results indicate that these strategies effectively enhance students' retention and recall, with the experimental group outperforming the comparison group. This creates the vital role of mnemonic techniques in refining learning processes and aiding students in retaining information, contributing to their academic success.

This study examined second-year students in the Bachelor of Secondary Education, Major in English, at Central Bicol State University of Agriculture - Sipocot Campus. The students were split into two groups: 2A (experimental) and 2B (comparison). The research used a quasi-experimental design with pre-tests and post-tests to see how well mnemonic methods helped students remember information in Technical Writing from Week 7 to 13 covered topics. The results showed that mnemonic strategies improved students' ability to retain language information, both immediately after the intervention and later.

The research strengths include a clear design that enabled a robust evaluation of mnemonic effects, the use of reliable tools to measure retention, and practical advice for teachers on how to improve memory using these techniques. By focusing on specific Technical Writing topics, the study provided useful insights for teaching.

However, there are limitations. First, the sample size and diversity were small, so a larger, more varied group could provide better insights into how effective mnemonic methods are for different students. Second, the time spent using mnemonic techniques might not have been sufficient to produce lasting effects on retention. Future studies could examine how long these strategies remain effective over time. Third, the comparison group could be improved by providing a different intervention or no intervention, which would help isolate the specific effects of mnemonic methods. Fourth, using orelying solely onuestionnaires to measure retention might miss other important learning outcomes, like crsuch asal thinking or appland the application ofdge. A broader assessment approach could give a fuller picture of student learning.

The study also did not explore how well mnemonic methods transfer to other subjects or real-life situations. Looking into how students use these memory strategies in different areas could provide more insights into their overall usefulness. Addressing these gaps and focusing on future research, such as the long-term effects and transferability of mnemonic strategies in various educational settings, can make the study more relevant. While this research provides valuable insights into how mnemonic strategies support information retention in language learning, further studies could strengthen the findings regarding teaching practices and student outcomes.

The study found that students who used mnemonic methods remembered information better than those who did not. The experimental group scored higher on post-tests, with more students achieving very high retention levels, showing that mnemonic techniques are effective for memory. Before the intervention, the experimental group already had better retention levels than the comparison group. The pre-test results showed that more students in the experimental group had moderate to high retention before using mnemonic methods, indicating they might have had an advantage. In contrast, the comparison group, which did not use mnemonic strategies, showed stable performance with no significant improvement in retention after the intervention.

CONCLUSION

In condingstudy's findingsthis study demonstrate that mnemonic strategies significantly enhance students' information retention, not only in the short term but also with potential long-term benefits. The results specifically highlight that techniques such as acronyms and acrostics are particularly effective in improving memory performance among language learners. This underscores the practical value of integrating mnemonic methods into teaching practices, as they can foster more engaging and effective learning environments, thereby improving students' ability to recall and utilize acquired knowledge.

This research advances the field by providing empirical evidence on the effectiveness of mnemonic techniques in educational contexts, particularly within language education. It suggests that educators should consider adopting these strategies more broadly to facilitate learning and retention across diverse student groups. The study also emphasizes the need for ongoing development and adaptation of mnemonic approaches to suit different subjects and learning objectives.

For future research, it is recommended to explore the long-term impacts of various mnemonic techniques across a wider range of disciplines and student populations. Investigating how these methods sustain memory retention over extended periods can offer valuable insights into their broader applicability. Additionally, comparative studies examining the effectiveness of different mnemonic strategies can help optimize instructional approaches. Further research could also assess how digital tools and multimedia applications might enhance mnemonic techniques, providing more innovative ways to support student learning and memory retention in evolving educational environments.

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