Vocabulary Acquisition, Content Retention, and Multimodal Learning Styles Among L2 Learners

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Abstract

Aim: This study aimed to examine the interrelationships between vocabulary acquisition, content retention, and multimodal learning styles among second language (L2) learners at Camarines Norte State College.

Methodology: A descriptive–correlational design was employed with 450 students from three academic units as respondents. Data were gathered through structured questionnaires and analyzed using descriptive statistics and correlational tests.

Results: Findings revealed that vocabulary was most effectively acquired through contextualized learning, particularly via media exposure and conversation. Content retention was enhanced through repetition, self-testing, and practical application. Learners identified visual and auditory modalities as significantly contributing to their comprehension and memory. Statistical analyses showed significant differences in vocabulary acquisition, content retention, and learning style preferences when grouped by sex assigned at birth, year level, and family income. Strong positive correlations were also established between vocabulary acquisition and content retention, as well as between vocabulary acquisition and multimodal learning styles.

Conclusion: The results informed the development of "EnGAGE: Enhancing Growth in Acquisition, Grammar, and Expression," a learner-centered English language program integrating multimodal strategies to strengthen vocabulary mastery and content retention. The study highlights the importance of aligning instructional practices with learner preferences to improve L2 proficiency.

Keywords: *vocabulary acquisition, content retention, multimodal learning, second language learners, English language education*

Introduction

In today's globalized and culturally interconnected world, the ability to communicate in a second language is no longer just an advantage but a necessity. Proficiency in another language enables individuals to participate in global dialogues, pursue academic and professional opportunities, and engage in multicultural environments. At the heart of this process lies vocabulary, the foundation of communication. Without sufficient lexical knowledge, learners struggle to construct meaning and express ideas effectively. Yet, acquiring vocabulary is not enough; learners must also retain and apply it in authentic contexts, making content retention a crucial component of proficiency (Nation, 2025).

Traditional language teaching methods, which often rely on rote memorization and drills, tend to neglect learners' diverse cognitive and sensory preferences. Such approaches may overlook the role of multimodal learning, which integrates visual, auditory, kinesthetic, and reading/writing channels to optimize engagement and long-term recall (Girón-García & Gargallo-Camarillas, 2021). Research supports this perspective, showing that multimodal instruction enhances deeper cognitive processing and allows students to internalize new knowledge in ways that align

with their strengths (Khorrami, 2024; Rohi & Nurhayati, 2024). This is consistent with studies in the Philippine context, where reflective and inclusive teaching practices are seen as vital to addressing diverse learner needs and promoting engagement (Bontuyan, 2025).

In the Philippine setting, English is not only a medium of instruction but also a key to academic mobility and employability. National initiatives such as DepEd's English Proficiency Program and CHED's Outcomes-Based Education (OBE) framework emphasize communication skills as core competencies for higher education learners. However, challenges persist in ensuring that students achieve sustainable vocabulary mastery and retention, particularly in provincial state colleges where exposure and resources may be limited. Research has further shown that teacher commitment and contextualized pedagogical strategies are critical in supporting learners in underserved areas (Pangilinan, 2025).

To address these gaps, this study examined the interrelationships among vocabulary acquisition, content retention, and multimodal learning styles among second language learners at Camarines Norte State College. By investigating how multimodal strategies can foster vocabulary development and retention, the study provides evidence-based insights for curriculum development aimed at enhancing English proficiency and intercultural competence in higher education.

Review of Related Literature and Studies

Vocabulary Acquisition

Vocabulary acquisition is a central component of second language learning, with research highlighting the limitations of rote memorization and advocating for contextualized and multimodal approaches. Nation (2025) and Susanto (2021) emphasize that vocabulary is best learned when encountered in meaningful contexts, which not only deepens understanding but also supports long-term retention. Contextual learning becomes even more effective when combined with multimodal strategies like visual, auditory, and kinesthetic inputs, which address diverse learning styles and mirror real-life communication (Rohi & Nurhayati, 2024; Khorrami, 2024). This approach aligns with cognitive psychology, which underscores the importance of meaningful, repeated exposure and active engagement in enhancing memory and retention (Baddeley et al., 2020).

Several strategies have been shown to strengthen vocabulary retention. Spaced repetition, grounded in the forgetting curve, consolidates knowledge by systematically revisiting words, making it particularly effective when paired with multimodal tools like flashcards or mobile apps (Rana, 2023). Incidental learning, such as exposure to visual cues in daily environments, has also proven beneficial, though it is underutilized in higher education (Cennetkuşu et al., 2020). Collaborative dialogue and social interaction foster negotiation of meaning and shared problem-solving, further supporting vocabulary retention (Ahmadian & Tajabadi, 2020). Cognitive factors such as working memory and phonological sensitivity also influence acquisition, highlighting the need for multimodal strategies that bridge learners' cognitive gaps (Hayashi & Takahashi, 2020; Lim & Kessler, 2024). These findings align with efforts in higher education to future-proof instruction by embedding more learner-centered and innovative strategies (Carvajal et al., 2025).

Content Retention

Retention of learned content depends not only on initial exposure but also on the strategies employed to reinforce memory. Classic techniques such as repetition, rehearsal, and retrieval practice have long been recognized as effective (Baddeley et al., 2020). However, in the context of second language learning, the quality of retention is enhanced when learners are provided with opportunities to apply vocabulary in meaningful and authentic tasks. This includes self-testing, peer discussions, and role-play activities, which stimulate active recall and long-term memory consolidation.

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Studies in Philippine classrooms have shown that reflective and contextually grounded teaching practices lead to higher student engagement and stronger retention outcomes (Bontuyan, 2025). Similarly, research emphasizes that when learners are supported through innovative strategies, such as problem-based and learner-centered tasks, they not only retain more but also develop critical thinking skills (Carvajal et al., 2025). Retention also correlates with teacher commitment, where highly motivated teachers in underserved schools have demonstrated success in helping students remember and apply language skills despite limited resources (Pangilinan, 2025). These findings suggest that content retention is not merely a function of cognitive effort but also of pedagogical approach and teacher dedication.

Multimodal Learning Styles

Multimodal learning acknowledges that learners differ in their preferred ways of processing information—some thrive on visual inputs like charts and videos, others on auditory cues like lectures or discussions, while still others prefer kinesthetic activities or text-based materials. Research shows that using multiple modes simultaneously fosters deeper encoding of information, thereby improving both comprehension and retention (Girón-García & Gargallo-Camarillas, 2021; Rohi & Nurhayati, 2024).

In the Philippine context, multimodal learning aligns with curriculum reforms that emphasize differentiated instruction and inclusivity. Teachers are encouraged to integrate technology, group work, and flexible assessment tools to accommodate diverse learners (Carvajal et al., 2025). Furthermore, multimodal approaches resonate with reflective practices that promote responsive and adaptive teaching, ensuring no learner is left behind (Bontuyan, 2025). Studies also highlight that multimodal strategies are especially effective in low-resource classrooms, where creativity and teacher adaptability compensate for material limitations, ultimately supporting more equitable learning experiences (Pangilinan, 2025). By addressing learners' varied strengths, multimodal instruction enhances vocabulary acquisition and content retention while promoting a more engaging and culturally relevant learning environment.

Research Objectives

This study aimed to examine the vocabulary acquisition, content retention and multimodal learning styles among second language learners in Camarines Norte State College as a basis for English Language Program Enhancement.

Specific Objectives
1. To describe the profile of second language learners based on their year level, delivery unit, assigned sex at birth, and monthly family income.
2. To determine the learners' level of vocabulary acquisition in terms of definition, pronunciation, usage, contextual learning, and reinforcement techniques.
3. To examine content retention among the respondents by analyzing factors such as interest and motivation, repetition, association, the use of multiple channels, and application and practice.
4. To assess the multimodal learning styles of the respondents by evaluating their reliance on visual, auditory, reading/writing, kinesthetic, and combined elements.
5. To determine whether significant differences exist between the use of multimodal teaching approaches and the levels of vocabulary acquisition and content retention when the respondents are grouped according to their profiles.
6. To explore the significant relationships between learners' vocabulary acquisition, content retention and multimodal learning styles; and based on the findings, the researcher
7. To propose an enhanced material or program that will serve as a foundation for enhancing the curriculum for L2 learners.

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Research Questions

1. What is the profile of second language learners in terms of year level, delivery unit, sex assigned at birth, and monthly family income?
2. What is the level of learners' vocabulary acquisition in terms of definition, pronunciation, usage, contextual learning, and reinforcement techniques?
3. How do respondents retain content, as measured through interest and motivation, repetition, association, use of multiple channels, and application and practice?
4. What are the multimodal learning styles of the respondents in terms of visual, auditory, reading/writing, kinesthetic, and combined elements?
5. Are there significant differences in the levels of vocabulary acquisition and content retention when respondents are grouped according to their profiles?
6. Is there a significant relationship between learners' vocabulary acquisition, content retention, and multimodal learning styles?
7. What enhanced material or program can be proposed to strengthen the curriculum for second language learners based on the study's findings?

In addition, this study introduces the EnGAGE program, a proposed language learning framework that leverages multimodal strategies to strengthen vocabulary and retention. By investigating these variables, the study contributes to English language pedagogy, offering evidence-based insights that can inform instructional practices, curriculum design, and policy.

Research Methodology

Research Design

A descriptive–correlational design was employed to examine the relationships among vocabulary acquisition, content retention, and multimodal learning styles. This design was selected because it enables the identification of associations between variables without manipulating them, allowing for naturalistic insights into learners' preferences and outcomes. Such designs are frequently applied in education and language learning research, as they capture authentic learner experiences and support data-driven curriculum planning (Abenojar et al., 2025).

Population and Sampling

Participants were drawn from the three largest delivery units of Camarines Norte State College: the College of Business and Public Administration (CBPA), the College of Arts and Sciences (CAS), and the College of Education (CoEd). These colleges had a combined student population of 5,078, with 1,866 from CBPA, 1,594 from CAS, and 1,618 from CoEd. Using the Raosoft sample size calculator, a sample of 450 students was determined, ensuring statistical validity with a 5% margin of error, a 95% confidence level, and a 50% response distribution.

Inclusion criteria required that participants be (a) currently enrolled in CBPA, CAS, or CoEd during the academic year of the study, (b) identified as second language learners of English, and (c) willing to provide informed consent. Exclusion criteria removed students outside these colleges, non–L2 learners, and those who declined or submitted incomplete responses. These parameters ensured that the data collected were reliable, contextually relevant, and aligned with educational realities (Abenojar et al., 2025).

Instrument

The researcher designed a structured questionnaire to measure three main constructs. Vocabulary acquisition was evaluated through indicators such as definition, pronunciation, usage, contextual learning, and reinforcement. Content retention was assessed in terms of interest and motivation, repetition, association, use of multiple channels,

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and application. Multimodal learning styles were measured across auditory, visual, kinesthetic, reading/writing, and combined preferences.

To ensure its quality, the instrument was reviewed by experts and pilot-tested with 50 students. The results showed Cronbach's alpha values above .80, indicating a high level of reliability and internal consistency. Rigorous instrument validation has been emphasized in research as essential for producing credible and applicable results, particularly when bridging academic practices with applied contexts (Amihan & Sanchez, 2023).

Data Collection

The questionnaire was first reviewed by the researcher's adviser, then formally approved for administration. Permission was secured from the CNSC President to conduct the survey in CBPA, CAS, and CoEd. Before participation, respondents were informed of the study's objectives, assured of confidentiality, and asked to provide informed consent. The survey was administered in a supervised setting, and only completed responses were included in the final dataset.

Treatment of Data

Descriptive statistics such as frequency counts and percentage distributions were used to summarize the demographic profile of the respondents. The weighted mean and 4-point Likert scale were employed to analyze responses to the questionnaire, with the following interpretation:

3.25–4.00 = Strongly Agree
2.51–3.25 = Agree
1.76–2.50 = Disagree
1.00–1.75 = Strongly Disagree

Inferential statistics were also applied. Independent samples t-tests and one-way ANOVA were used to determine differences in vocabulary acquisition, content retention, and multimodal learning styles across demographic groups. Pearson product–moment correlation was employed to examine the relationships among the three major constructs. All statistical tests were performed with a 0.05 level of significance.

Ethical Considerations

This study strictly adhered to ethical principles. Participation was voluntary, and respondents had the right to withdraw at any time without penalty. No identifying information was collected, ensuring anonymity. Informed consent was obtained before data gathering, and responses were kept confidential. Data were stored in password-protected files accessible only to the researcher and were deleted one year after the completion of the study. Ethical clearance was obtained from the Research Center of Lyceum of the Philippines University–Batangas, and the study complied with the Data Privacy Act of 2012 (RA 10173). Following ethical guidelines, as emphasized by Resnik (2020), safeguarded participants' rights and enhanced the trustworthiness of the research..

Results and Discussions

The sample consisted of 450 respondents: 226 (50.2%) were female and 224 (49.8%) were male. By year level, 152 (33.8%) were first-year students, 118 (26.2%) were second-year students, 96 (21.3%) were third-year students, and 84 (18.7%) were fourth-year students. In terms of monthly family income, 172 (38.2%) belonged to households earning below ₱10,000, 143 (31.8%) earned between ₱10,001–20,000, and 135 (30%) earned above ₱20,000. This distribution provided a balanced representation across sex, year level, and socioeconomic background, making it possible to examine group differences with confidence.

Vocabulary Acquisition. Respondents identified contextual learning—such as exposure to media, conversations, and real-life interactions—as the most effective method of acquiring vocabulary, aligning with Objective 2. Reinforcement strategies like self-testing and flashcards were also rated highly, particularly among younger learners, while pronunciation and usage were considered moderately effective. These findings parallel the importance of

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experiential and contextualized approaches in education, which support authentic language acquisition and application (Abenojar et al., 2025).

Content Retention. In relation to Objective 3, students strongly agreed that repetition and self-testing supported long-term recall. They also valued applying new vocabulary in authentic settings, such as group work and digital platforms. Association strategies, like linking words to images or prior knowledge, were also viewed as useful. Many students reported that combining channels—visual, auditory, reading/writing, and kinesthetic—was particularly effective for strengthening retention. This reflects the role of reflective and integrative practices in reinforcing knowledge beyond surface memorization (Bontuyan, 2025).

Multimodal Learning Styles. Addressing Objective 4, most respondents preferred visual and auditory modes, especially videos, slides, and podcasts. Kinesthetic activities, such as role play, were effective but less popular overall, while reading/writing strategies were favored by higher-year students who relied more on note-taking and review. A significant portion of students expressed a preference for combined modalities, reflecting flexible and adaptive learning styles. These findings resonate with Colasito (2025), who underscored the significance of multimodal engagement in oral communication, showing how layered inputs help learners retain and express knowledge more effectively.

Group Differences. In line with Objective 5, differences emerged across demographic groups. Female students reported greater use of multimodal strategies, while higher-year students demonstrated stronger retention, likely due to greater academic exposure. Students from lower-income households leaned toward contextual and collaborative strategies, reflecting adaptability in applying vocabulary to daily life. Independent samples t-tests and one-way ANOVA confirmed these differences, with moderate effect sizes (η^2 = 0.06–0.10) indicating meaningful variation between groups. The adaptability of learning strategies among diverse groups highlights how socioeconomic contexts shape learner resilience and resourcefulness (Pangilinan, 2025).

Correlations. Correlation analysis showed strong positive relationships: vocabulary acquisition and content retention (r = .72, p < .01), vocabulary acquisition and multimodal learning styles (r = .65, p < .01), and content retention and multimodal learning styles (r = .58, p < .01). Effect size analysis (Cohen's guidelines) indicated large associations between vocabulary acquisition and content retention, and moderate-to-large associations between the other variable pairs, supporting Objective 6.

Synthesis. These results confirm that vocabulary acquisition, content retention, and multimodal learning are deeply interrelated. Learners' preference for contextual exposure supports Nation's (2025) claim that vocabulary is best acquired through meaningful use rather than rote drills. Similarly, reliance on repetition and real-world application aligns with memory consolidation theories (Baddeley et al., 2020; Griffiths & Parr, 2023). The dominance of visual and auditory preferences reinforces findings by Khorrami (2024) and Rohi and Nurhayati (2024), which demonstrate that multimodal input strengthens comprehension and retention. Furthermore, reflective and learner-centered pedagogies, as emphasized by Bontuyan (2025) and Colasito (2025), provide evidence that multimodal design can effectively bridge vocabulary acquisition and content mastery.

In terms of practical implications, the findings support Objective 7 by pointing toward integrated instructional design. Instead of isolating vocabulary drills, retention exercises, and learning style considerations, English language programs should blend them through multimodal approaches. Teachers are encouraged to use authentic materials like films, podcasts, and interactive apps, while curriculum designers may embed multimodal repetition strategies into lessons. Policymakers and administrators can support this shift by funding resources and teacher training that institutionalize multimodal pedagogy in higher education.

Conclusions

This study revealed that vocabulary acquisition, content retention, and multimodal learning styles are strongly interrelated among L2 learners at Camarines Norte State College. Contextual learning strategies and multimodal engagement significantly enhanced vocabulary mastery and long-term retention. Differences emerged across learner profiles, suggesting that sex assigned at birth, year level, and socioeconomic background influence language learning strategies. The results affirm that integrating contextual and multimodal approaches fosters stronger language proficiency and supports learners' intercultural competence.

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Recommendations

Based on the findings, the following recommendations are proposed:

Instructional Practices. Teachers may adopt multimodal strategies such as films, podcasts, role-play, and digital tools to accommodate diverse learner preferences and enhance vocabulary retention.

Curriculum Development. Curriculum designers may integrate contextualized and multimodal activities into English language programs to support more meaningful and sustainable learning.

Policy and Institutional Support. Policymakers and administrators may provide resources, facilities, and professional development programs to institutionalize multimodal pedagogy in higher education.

Proposed Intervention. The researcher recommends the adoption of the EnGAGE: Enhancing Growth in Acquisition, Grammar, and Expression program, which combines contextual learning, spaced repetition, and multimodal techniques as a model for enhancing vocabulary and content retention.

Future Research. Future researchers may replicate this study in other regions, conduct longitudinal investigations, or examine technology-enhanced multimodal learning approaches to broaden the scope and applicability of the findings.

"EnGAGE: Enhancing Growth in Acquisition, Grammar, and Expression" A Multimodal Program for Vocabulary Mastery and Content Retention among L2 Learners

Key Result Area (KRA)	Specific Objective	Program Intervention	Strategies (How to do it)	Persons Responsible	Expected Outcome / Success Indicator
I. Vocabulary Acquisition 1.1 Reinforce-Ment Techniques	To assess vocabulary study practices among learners.	**Recall Boosters** - Flashcard drills - Word review sprints - Gamified quizzes	Weekly scheduled drills; game-based quiz apps; integration into bellwork activities	English Teachers Language Coaches	85% of learners demonstrate improved vocabulary recall in weekly assessments
1.2 Usage	To evaluate learners' use of vocabulary in context.	**Real Talk Sessions** - Roleplays - Sentence building - Dialogue writing Guided conversations - spontaneous speaking tasks	Biweekly speaking tasks; sentence-building worksheets; peer dialogues and presentations	Instructors Public Speaking Coaches	90% of learners use target vocabulary accurately in oral and written performance tasks
1.3 Definition	To improve learners' ability to decode word structure.	**Morpho-Mastery** - Affix games - Root word puzzles - Decoding drills	Integrate root-based vocabulary in reading materials; decoding challenges during reading hour	English Faculty Curriculum Planners	85% of learners show improved decoding skills in reading comprehension activities

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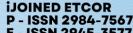
Key Result Area (KRA)	Specific Objective	Program Intervention	Strategies (How to do it)	Persons Responsible	Expected Outcome / Success Indicator
II. Content Retention 2.1 Application and Practice	To reinforce retention through real-world language use.	**Interactive Writing Labs** - Summary tasks - Peer teaching - Mini-dialogue creation	Writing prompts tied to recent vocabulary; peer assessment; integration with performance-based tasks	Writing Instructors Peer Tutors	90% of learners produce relevant and accurate written outputs with applied vocabulary
2.2 Association Techniques	Analyze recall based on mental connections.	**Word Web Workshops** - Semantic maps - Analogy games - Memory linking -Vocabulary Clusters	Online and in-class mapping tools; word relationships games; journaling with associations	Vocabulary Trainers Cognitive Skills Coordinators	85% of learners correctly demonstrate word associations during formative assessments
2.3 Interest and Motivation	Evaluate learner motivation and interest in retention.	**Inspire Circles** - Storytelling contests - Motivational speakers - Learning journaling	Monthly storytelling events; invite guest speakers; reflective journal entries evaluated periodically	Guidance Office Program Motivators Faculty Advisers	90% of learners voluntarily participate and show improved motivation in survey/feedback
III. Multimodal Learning Styles					
3.1 Kinesthetic	Examine learning preferences related to movement and activity.	**Action English/ Vocab in Motion** - Roleplay - Physical word hunts - Drama-based tasks -Total Physical Response (TPR) - Classroom movement games	Weekly physical activities linked to vocabulary units; performative learning strategies	Drama Coaches PE-English Integrators	85% of kinesthetic learners show higher engagement and retention in activity-based assessments and Active class participation; improved recall in movement-linked activities.
3.2 Reading/ Writing	Assess preference for learning	**Vocabulary Journaling & Word Logs**	Weekly logs and journal checks; encourage	English Faculty Learning Skills Mentors	85% of learners submit weekly vocabulary

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Key Result Area (KRA)	Specific Objective	Program Intervention	Strategies (How to do it)	Persons Responsible	Expected Outcome / Success Indicator
	through writing and reading tasks.	- Note-taking routines - Reflective entries - Keyword mapping -Vocabulary Notebooks -Written reflections	summarization and visualization of concepts		reflections with improved clarity and understanding
3.3 Combined Learning Style	Understand integration of various learning styles for vocabulary and content mastery.	**Multimodal Modules** - Video-watching - Note-taking - Group Discussion - Reflection tasks -short films -visual mapping	Rotating group activities; integrate visual/audio/ text inputs in lessons; module-based learning packs	Curriculum Designers Module Writers ICT (Information and Communication Technology) Team	90% of learners show improved scores in integrated vocabulary-content tasks

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