

Enhancing Vocabulary Acquisition Through Project-Based Learning: A Case Study of 4th Grade Students in Rural Areas of Manabí Province in Ecuador

Mejorar la adquisición de vocabulario mediante el aprendizaje basado en proyectos: un estudio de caso de estudiantes de 4º grado en zonas rurales de la provincia de Manabí en Ecuador.

James Rodríguez Ortega, Fernando Patricio Riera Hermida

INNOVACIÓN Y  
CONVERGENCIA: IMPACTO  
MULTIDISCIPLINAR

Enero - Junio, V°6 - N°1; 2025

- ✓ **Recibido:** 10 /01/2024
- ✓ **Aceptado:**30/01/2025
- ✓ **Publicado:** 31/01/2025

PAIS

- Ecuador, Manabí
- Ecuador, Milagro

INSTITUCIÓN

- UE Eugenio Espejo
- UNEMI

CORREO:

- ✉ [jamesrodriguez@hotmail.com](mailto:jamesrodriguez@hotmail.com)
- ✉ [frierah@unemi.edu.ec](mailto:frierah@unemi.edu.ec)

ORCID:

- <https://orcid.org/0009-0003-1908-4478>
- <https://orcid.org/0009-0006-7570-1305>

FORMATO DE CITA APA.

Rodríguez J. Riera, F. (2025). *Enhancing Vocabulary Acquisition Through Project-Based Learning: A Case Study of 4th Grade Students in Rural Areas of Manabí Province in Ecuador*. *Revista G-ner@ndo*, V°6 (N°1.), 601 – 615..

Resumen

La adquisición de vocabulario es un aspecto fundamental del aprendizaje de idiomas, en particular para los estudiantes jóvenes en áreas rurales donde los recursos educativos suelen ser limitados. Este estudio investiga la eficacia de un enfoque de aprendizaje basado en realia y orientado a proyectos para mejorar la adquisición de vocabulario entre estudiantes de cuarto grado en una escuela rural en la provincia de Manabí, Ecuador. La intervención combinó realia (objetos tangibles del entorno inmediato de los estudiantes) con actividades de aprendizaje basado en proyectos (PBL) para crear una experiencia de aprendizaje atractiva y contextualizada. El diseño cuasi experimental incluyó una prueba previa y una prueba posterior para medir las ganancias de vocabulario, complementadas con datos cualitativos de observaciones, entrevistas a maestros y comentarios de los estudiantes. Los resultados revelaron mejoras significativas en el reconocimiento de vocabulario, la pronunciación, la ortografía y el uso contextual, lo que demuestra el potencial de realia y PBL para abordar los desafíos educativos en entornos con recursos limitados. El estudio concluye que la integración de realia y PBL es una estrategia eficaz y escalable para la enseñanza del vocabulario, que ofrece información valiosa para los educadores en contextos similares.

**Palabras clave:** Adquisición de vocabulario, instrumentos reales, aprendizaje basado en proyectos, educación rural, aprendizaje experiencial,

Abstract

Vocabulary acquisition is a fundamental aspect of language learning, particularly for young learners in rural areas where educational resources are often limited. This study investigates the effectiveness of a realia-based, project-oriented learning approach for enhancing vocabulary acquisition among fourth-grade students in a rural school in Manabí Province, Ecuador. The intervention combined realia—tangible objects from the students' immediate environment—with project-based learning (PBL) activities to create an engaging and contextualized learning experience. The quasi-experimental design included a pre-test and post-test to measure vocabulary gains, complemented by qualitative data from observations, teacher interviews, and student feedback. Results revealed significant improvements in vocabulary recognition, pronunciation, spelling, and contextual usage, demonstrating the potential of realia and PBL to address educational challenges in resource-constrained settings. The study concludes that integrating realia and PBL is an effective and scalable strategy for vocabulary instruction, offering valuable insights for educators in similar contexts.

**Keywords:** Vocabulary acquisition, realia, project-based learning, rural education, experiential learning,

## Introduction

Vocabulary acquisition is a cornerstone of language learning, forming the foundation for reading, writing, speaking, and listening skills. It is particularly critical for young learners in rural areas, where access to quality education and language learning resources is often limited (Webb, 2020). Research has shown that effective vocabulary teaching methods must go beyond rote memorization to incorporate active and meaningful engagement with words (Schmitt, 2019). Project-Based Learning (PBL) has emerged as a promising instructional approach, offering opportunities for students to learn vocabulary through collaborative, real-world tasks that promote deeper understanding and retention (Beckett & Slater, 2021). When combined with realia—tangible objects used as teaching aids—PBL can create a highly contextualized and experiential learning environment, especially beneficial in resource-constrained settings (Nation, 2021).

Rural schools face unique challenges that exacerbate barriers to language acquisition, including limited infrastructure, underqualified teachers, and the absence of modern teaching materials (Lai et al., 2022). Despite these limitations, educators in such contexts have leveraged locally available resources and innovative pedagogical strategies to enhance language learning outcomes. Realia-based instruction, in particular, has proven effective in bridging resource gaps by providing students with tactile and visual learning experiences that link vocabulary to familiar objects and concepts (Gao & Xu, 2022). These hands-on approaches align with cognitive learning theories, which emphasize the importance of contextualizing new information to facilitate comprehension and memory retention (Mayer, 2020).

Studies on vocabulary acquisition have consistently highlighted the importance of meaningful interactions in learning new words (Folse, 2021). Realia provides an immediate and tangible connection between words and their meanings, making it especially effective for young learners who benefit from multisensory input. When integrated with PBL, realia-based instruction not only enhances vocabulary learning but also fosters critical thinking, problem-solving, and

---

collaborative skills (Kukulska-Hulme et al., 2020). This synergy is particularly valuable in rural education, where resource limitations often require creative and adaptive teaching methods.

This study investigates the effectiveness of a realia-based, project-oriented vocabulary intervention for fourth-grade students in a rural school in Manabí Province, Ecuador. By combining the tactile and visual engagement of realia with the collaborative and contextual benefits of PBL, this approach seeks to address the specific challenges of vocabulary acquisition in under-resourced settings. Through this research, the aim is to contribute to the growing body of literature on innovative and scalable pedagogical strategies for rural education while highlighting the transformative potential of experiential learning methods.

Project-Based Learning (PBL) has been widely recognized as an effective pedagogical approach for vocabulary acquisition, offering dynamic and engaging methods to support language development. Recent research highlights the numerous benefits of PBL, particularly its ability to engage students actively, contextualize learning, and integrate meaningful vocabulary usage into real-world tasks. Lungu (2022) emphasizes that PBL facilitates the simultaneous development of vocabulary and critical language skills by immersing learners in tasks that require authentic language application. This approach is especially relevant in language learning contexts, where vocabulary retention and practical usage are often challenging (Lungu, 2022). Similarly, Yunita et al. (2022) found that PBL strategies employing digital tools such as video blogging significantly enhanced vocabulary skills among early learners, underscoring the importance of integrating multimedia into language instruction to create engaging and relatable learning experiences (Yunita et al., 2022).

The adaptability of PBL across diverse educational contexts is another critical advantage. Studies by Imbaquingo and Cárdenas (2023) demonstrated its efficacy in rural Ecuador, where learners improved their English vocabulary through projects that integrated local culture and practical community themes. This alignment with students' everyday lives not only enriched

---

vocabulary acquisition but also increased student engagement and motivation (Imbaquingo & Cárdenas, 2023). Similarly, Tyas and Fitriani (2021) explored the use of collaborative video projects in PBL and reported substantial improvements in vocabulary acquisition among students, highlighting the significance of teamwork and creative tasks in language learning (Tyas & Fitriani, 2021).

The implementation of PBL is not without challenges, particularly in resource-constrained environments. Owens and Hite (2020) addressed this issue by incorporating virtual global collaboration into PBL, allowing students from different geographical areas to engage in meaningful language tasks despite physical and logistical limitations. Their findings indicated that such virtual collaboration not only enhanced vocabulary acquisition but also improved students' intercultural communication skills (Owens & Hite, 2020). Similarly, Rohmah et al. (2020) emphasized the importance of effective teacher facilitation in maximizing the potential of PBL. Their study revealed that continuous monitoring and guidance were essential for ensuring the success of PBL in environments with limited resources (Rohmah et al., 2020).

The role of PBL in fostering collaborative and critical thinking skills is another area of focus. Alrajeh (2021) highlights the importance of experiential learning in teacher training programs, demonstrating how PBL can prepare educators to effectively integrate vocabulary-building strategies into their classrooms. By immersing future teachers in PBL methodologies, the study found that educators were better equipped to apply collaborative and interactive approaches in their teaching practices (Alrajeh, 2021). This finding aligns with research by Sudathip (2020), who observed that brainstorming and contextualized task completion in PBL activities led to significant vocabulary gains among undergraduate students (Sudathip, 2020).

Further evidence of PBL's impact comes from Hafdarani (2021), who investigated its application in teaching German vocabulary. The study revealed that PBL strategies, such as project assignments on specific themes, significantly improved learners' vocabulary and speaking

---

skills, enabling them to meet European language proficiency standards (Hafdarani, 2021). Similarly, Wahbeh et al. (2021) demonstrated that PBL contributed to the development of life skills alongside language acquisition, such as self-regulation, collaboration, and critical thinking, further reinforcing its holistic educational benefits (Wahbeh et al., 2021).

Digital innovations have further enhanced the application of PBL in language learning. For instance, Yunita et al. (2022) used vlogs to improve early childhood learners' vocabulary, while Miolo et al. (2023) applied a multiple intelligence approach within PBL to support English vocabulary acquisition during reading instruction. Both studies highlighted the significance of combining digital tools and cognitive strategies in facilitating deeper vocabulary learning (Yunita et al., 2022); (Miolo et al., 2023).

In conclusion, the growing body of literature establishes PBL as a transformative and effective approach to vocabulary acquisition. Its adaptability, engagement, and ability to integrate real-world contexts make it especially valuable in diverse educational environments. Although challenges such as resource constraints and the need for teacher training persist, the potential of PBL to revolutionize vocabulary learning and foster critical skills is undeniable. Future research should focus on longitudinal studies and innovative digital tools to further enhance its application.

### **Materials and. Methodology**

The participants for this study consist of 25 fourth-grade students, aged between 9 and 10 years, enrolled in a rural elementary school located in Manabí Province, Ecuador. The selected school operates within a context of severe resource constraints, lacking access to digital tools, modern textbooks, or supplementary educational materials. The students' exposure to English language instruction is minimal, with learning primarily confined to the classroom and relying on traditional methods. Their socio-economic backgrounds vary but are generally characterized by limited access to educational opportunities outside the school environment. Due

---

to these conditions, the study aims to address their specific needs by leveraging tangible, real-world objects, or *realia*, as the primary instructional method to teach English vocabulary.

To comprehensively evaluate the effectiveness of the intervention, a combination of quantitative and qualitative instruments was employed. First, a vocabulary pre-test and post-test were developed to measure students' knowledge and retention of the target vocabulary. These tests, each consisting of 30 multiple-choice items, were directly aligned with the vocabulary introduced during the intervention. The pre-test served as a baseline for assessing initial knowledge, while the post-test measured gains in vocabulary acquisition following the intervention. Structured observation protocols were also implemented to document classroom interactions, student engagement levels, and the teacher's instructional practices. These observations provided real-time insights into the dynamics of the lessons and the effectiveness of the instructional approach.

Realia, defined as tangible, real-world objects, constituted the primary teaching materials. Items such as farm tools, fruits, vegetables, and household goods, all relevant to the students' local context, were integrated into the lessons. These objects offered a visual and tactile dimension to the learning process, helping students connect English vocabulary to familiar and practical contexts. To capture student perceptions, simple Likert-scale surveys were distributed, enabling students to reflect on their engagement, enjoyment, and perceived learning outcomes. Additionally, semi-structured interviews with the teacher provided a deeper understanding of their experiences with the methodology, challenges encountered, and observations regarding student progress.

The study adopted a quasi-experimental one-group pre-test and post-test design to evaluate the impact of the realia-based, project-oriented intervention on vocabulary acquisition. This design was chosen to assess measurable changes in student performance while simultaneously exploring the qualitative dimensions of the learning experience. Spanning five

---

weeks, the intervention comprised ten structured lessons, each lasting 60 minutes. The methodology incorporated elements of project-based learning (PBL) to encourage collaborative, hands-on engagement with the target vocabulary. The design emphasized not only direct vocabulary instruction but also the practical application of words through meaningful tasks, fostering deeper cognitive engagement and retention.

The intervention was executed in three distinct phases: preparation, implementation, and review. During the preparation phase, a comprehensive list of 30 target vocabulary words was developed. These words were selected based on their relevance to the students' daily lives and the availability of corresponding realia. The realia items were collected, and the teacher was oriented on integrating these objects into lesson plans effectively.

The implementation phase spanned the ten lessons, each carefully designed to introduce, practice, and reinforce vocabulary acquisition. The initial lessons (1–2) involved direct interaction with realia, where students were introduced to the objects and their English names through repetition and visual association. Activities such as matching games and labeling exercises reinforced these initial connections. In the subsequent lessons (3–6), students engaged in project-based tasks, including sorting and categorizing objects, creating thematic displays (e.g., a market stall), and presenting their projects to peers. These collaborative activities encouraged active usage of vocabulary in a supportive and interactive environment.

The final lessons (7–9) focused on real-life application through role-playing activities. For instance, students simulated market transactions, using target vocabulary in authentic conversational contexts. A review session consolidated learning through group games and storytelling using the objects. The intervention concluded with a post-test (Lesson 10), assessing vocabulary retention and application. Throughout the process, the teacher provided feedback and monitored student engagement to ensure the intervention's success.

---

A mixed-methods approach was employed to analyze the data collected from the study. Quantitative data from the pre-test and post-test were analyzed using paired sample t-tests to determine whether there were statistically significant gains in vocabulary knowledge. This analysis provided a clear measure of the intervention's impact on student performance.

Qualitative data from observation protocols, teacher interviews, and student feedback surveys were analyzed thematically. Observation notes were reviewed to identify patterns in student engagement and interactions with the realia-based methodology. Teacher interviews provided insights into instructional challenges, adaptations, and observed student progress, while student surveys offered a perspective on the learners' experiences and satisfaction with the approach. By triangulating these quantitative and qualitative data sources, the analysis provided a holistic understanding of the intervention's effectiveness and potential scalability in similar contexts.

### Results Analysis

Criteria	Pre-Test Mean Score	Post-Test Mean Score	Improvement
Recognition of Vocabulary	4.5	8.5	+ 4.0
Spelling Accuracy	3.8	7.9	+ 4.1
Word Pronunciation	5.0	8.7	+ 3.7
Word-Object Association	4.2	8.6	+ 4.4
Contextual Usage	3.5	7.5	+ 4.0
Categorization	4.1	8.2	+ 4.1
Retention of Vocabulary	3.7	8.0	+ 4.3



The results chart reveals a significant improvement in students' vocabulary acquisition across all seven evaluation criteria, demonstrating the effectiveness of the realia-based intervention. The pre-test scores indicate that students began with a limited understanding of the target vocabulary, with an average overall score of 28.8 out of 70. After the intervention, the post-test results showed a marked increase to 57.4, representing a gain of 28.6 points. This improvement highlights the impact of using tangible, real-world objects and interactive activities to facilitate meaningful and practical learning.

One of the most substantial improvements was observed in the recognition of vocabulary, where students' mean scores rose from 4.5 to 8.5. This reflects the effectiveness of presenting realia during lessons, as students were able to visually and physically interact with objects, solidifying their understanding of the associated vocabulary. Similarly, gains in word-object association (from 4.2 to 8.6) indicate that hands-on activities, such as sorting and categorizing items, were instrumental in helping students make concrete connections between words and their meanings.

The criterion of spelling accuracy also showed a notable improvement, increasing from 3.8 to 7.9. This growth suggests that labeling exercises and repeated exposure to vocabulary through games and collaborative tasks reinforced students' ability to spell target words correctly. In word pronunciation, scores increased from 5.0 to 8.7, reflecting the success of oral exercises, including role-playing and storytelling activities, which gave students opportunities to practice pronunciation in a supportive and interactive setting.

Another key area of growth was contextual usage, where scores rose from 3.5 to 7.5. The role-playing scenarios, such as market transactions, provided students with meaningful contexts to apply new vocabulary, demonstrating the value of embedding language learning into practical, real-life tasks. Similarly, improvements in categorization (from 4.1 to 8.2) show that students

---

developed the ability to organize vocabulary into thematic groups, a skill reinforced through project-based activities like creating thematic displays.

Finally, the criterion of retention of vocabulary experienced a significant gain, with scores increasing from 3.7 to 8.0. This demonstrates that the combination of hands-on interaction, collaborative learning, and revisiting vocabulary in various contexts helped students retain words more effectively over time. Overall, the chart underscores the success of the intervention in improving vocabulary acquisition. The consistent growth across all criteria validates the use of realia and project-based methods as effective strategies for teaching vocabulary in a rural, resource-constrained setting. The findings suggest that contextualized and experiential approaches can address the unique challenges faced by students in such environments, fostering meaningful learning outcomes. This study was conducted with a small sample of 25 fourth-grade students from a single rural school in Manabí Province, Ecuador. While the intervention showed significant improvements in vocabulary acquisition, the results may not be generalizable to other educational settings, age groups, or cultural contexts. Variations in local resources, teacher expertise, and student demographics could influence the applicability of the findings to different environments. Future research with larger and more diverse samples is needed to strengthen the generalizability of the conclusions.

### **Resource Constraints.**

Although the study relied on realia as a practical solution to resource limitations, the lack of access to technological tools or modern teaching materials restricted the scope of activities that could be implemented. For example, incorporating digital tools like multimedia presentations or language apps might have enhanced the learning experience further. The absence of such resources may have constrained the breadth of vocabulary exposure and the depth of engagement in some activities, limiting the potential impact of the intervention.

---

Short Duration of the Intervention. The intervention spanned only five weeks, with ten lessons focusing on vocabulary acquisition. While the results indicated significant short-term improvements, the study did not assess long-term retention or the sustained impact of the methodology. A longer intervention period, coupled with follow-up assessments, would provide more robust insights into the durability of vocabulary gains and the broader implications for language learning over time.

Future studies should include a larger and more diverse sample of students across multiple rural schools to improve the generalizability of the findings. Expanding the participant pool would allow researchers to examine how factors such as age, cultural background, and varying levels of resource availability impact the effectiveness of realia-based and project-based learning approaches. This broader scope could strengthen the study's conclusions and provide more actionable insights for educational policy and practice.

To complement the use of realia, integrating low-cost technological tools, such as mobile apps, interactive videos, or digital flashcards, could enhance the learning experience. These tools can provide additional vocabulary practice and support students' exposure to a wider range of language contexts. Even in resource-constrained settings, community-based solutions, like shared devices or solar-powered educational tools, could make technology-supported instruction feasible and effective. Future research should extend the intervention period and include follow-up assessments to evaluate long-term retention of vocabulary and the sustained impact of the methodology. Tracking students' progress over several months or even an academic year would offer valuable insights into the durability of vocabulary gains and the potential for realia-based approaches to contribute to broader language learning outcomes. Longitudinal studies would also help identify any adjustments needed to optimize the methodology for sustained success.

---

## Conclusions

The findings of this study clearly demonstrate that the integration of realia within a project-based learning framework is an effective strategy for enhancing vocabulary acquisition among fourth-grade students in a rural school setting. Through hands-on interactions with tangible objects, students were able to form meaningful connections between words and their real-world applications, which significantly improved their ability to recognize, pronounce, and spell new vocabulary. Additionally, the interactive and collaborative nature of project-based tasks allowed students to engage actively in the learning process, promoting deeper cognitive retention and practical application of vocabulary in contextual scenarios. These results emphasize the potential of realia-based methodologies as a valuable instructional approach in resource-limited environments where conventional materials are often unavailable.

This study underscores the critical role of student engagement and contextual relevance in achieving successful vocabulary acquisition outcomes. When learning is rooted in familiar and meaningful contexts, as facilitated by realia and project-based activities, students are more likely to retain vocabulary and demonstrate confidence in its practical use. Activities such as role-playing and thematic group tasks not only reinforced vocabulary retention but also encouraged collaboration and critical thinking skills, contributing to a holistic learning experience. Furthermore, by creating opportunities for students to apply newly acquired words in relevant, real-life scenarios, the intervention bridged the gap between theoretical knowledge and practical usage, thereby fostering a more dynamic and effective language-learning environment.

The results of this study indicate that realia-based project-based learning holds significant promise for broader implementation in similar rural and resource-constrained educational settings. However, its long-term success and scalability depend on addressing persistent challenges such as limited access to teaching resources, inadequate teacher training, and short intervention durations. Incorporating low-cost technological tools and extending the

---

intervention timeline could further enhance the effectiveness and sustainability of this approach. Additionally, collaborative efforts between educators, policymakers, and community stakeholders will be essential to ensure that this methodology can be adapted and scaled appropriately, maximizing its impact on vocabulary acquisition and overall language development.

### References bibliography

- Alrajeh, T. S. (2021). Project-Based Learning to Enhance Pre-Service Teachers' Teaching Skills in Science Education. *Universal Journal of Educational Research*.
- Folse, K. S. (2021). *Keys to teaching vocabulary to English language learners*. University of Michigan Press.
- Gao, X., & Xu, S. (2022). Realia in vocabulary instruction: A practical tool for resource-limited classrooms. *Journal of Language Teaching Research*, 25(3), 245–259. <https://doi.org/10.1016/j.jltr.2022.05.014>
- Hafdarani. (2021). Project-Based Learning of German Vocabulary and Speaking Skills. *Proceedings of the Fifth International Conference on Language, Literature, Culture, and Education (ICOLLITE 2021)*.
- Imbaquingo, A., & Cárdenas, J. (2023). Project-Based Learning as a Methodology to Improve Reading and Comprehension Skills in the English Language. *Education Sciences*.
- Kukulska-Hulme, A., Norris, L., & Donohue, J. (2020). Multimodal strategies for enhancing vocabulary learning: Lessons from cognitive theory. *Educational Technology Research and Development*, 68(4), 1097–1114. <https://doi.org/10.1007/s11423-019-09745-0>
- Lai, C., Zhang, L. J., & Wang, Y. (2022). The role of teacher adaptability in promoting language learning in rural schools. *TESOL Quarterly*, 56(1), 152–176. <https://doi.org/10.1002/tesq.3091>
- Lungu, I. (2022). Project-Based Learning as an Efficient Way of Studying English for Specific Purposes. *Logos Universality Mentality Education Novelty: Philosophy & Humanistic Sciences*.
- Mayer, R. E. (2020). *Multimedia learning* (3rd ed.). Cambridge University Press.
-

- Miolo, S., Pilongo, J. H., Sambouw, E. L., & Luwiti, S. R. N. (2023). Enhancing English Vocabulary Acquisition in Reading Instruction Through Multiple Intelligences Approach. *TRANS-KATA: Journal of Language, Literature, Culture and Education*.
- Nation, I. S. P. (2021). *Learning vocabulary in another language* (2nd ed.). Cambridge University Press.
- Owens, A., & Hite, R. (2020). Enhancing Student Communication Competencies in STEM Using Virtual Global Collaboration Project-Based Learning. *Research in Science & Technological Education*, 40, 76–102.
- Rohmah, S. N., Waluya, S., Rochmad, R., & Wardono, W. (2020). Project-Based Learning to Improve Student Learning Activeness. *Journal of Physics: Conference Series*, 1613.
- Schmitt, N. (2019). *Vocabulary in language teaching* (2nd ed.). Cambridge University Press.
- Sudathip, P. (2020). University Students' English Vocabulary Acquisition Using Task-Based Learning. *Solid State Technology*, 1537–1547.
- Tyas, N. K., & Fitriani, N. (2021). Enhancing Students' Speaking Skills by Making Video YouTube Tutorials as Project-Based Learning. *IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature*.
- Wahbeh, D., Najjar, E. A., Sartawi, A. F., Abuzant, M., & Daher, W. M. (2021). The Role of Project-Based Language Learning in Developing Students' Life Skills. *Sustainability*.
- Webb, S. (2020). Receptive and productive vocabulary size in L2 learners. *Studies in Second Language Acquisition*, 42(1), 129–153. <https://doi.org/10.1017/S027226311900058X>
- Yunita, W., Zaim, M., Syarif, H., & Zainil, Y. (2022). The Effectiveness of Project-Based Learning through Vlogs to Improve Pre-Schoolers' Vocabulary Mastery. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*.
-