

The effect of a 3-sectioned movable spelling-vocabulary board on the indigenous people students' English proficiency

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Abstract: Improving the English proficiency of Indigenous People (IP) students in the Philippine hinterlands, a marginalized sector, poses a challenge for educators. Bereft of the amenities of the lowlands, the researcher designed a three-section movable vocabulary-spelling board to enhance the IP students' level of proficiency. The researcher adopted a single-group quasi-experimental design in conducting the pre-test and post-test using 20 vocabulary and spelling words taken from the Philippine Informal Reading Inventory (Phil-IRI) assessment tool. The researcher allotted a seven-week interval between the spelling and vocabulary pre-test and post-test. Mean and standard deviation, Wilcoxon signed-rank test, and t-test were used to analyze the data. Findings revealed that the respondents' English spelling and vocabulary skills in the post-tests were both high after the intervention, with a notable difference between the pre-tests and post-tests. The study highlights the positive effect of the instructional board and recommends further study of its usefulness in other disciplines.

Keywords: *English spelling proficiency, English vocabulary proficiency, Indigenous people (IP) students, 3-Sectioned movable spelling-vocabulary instructional board.*

1. Introduction

The United Nations defines literacy as possessing necessary knowledge and skills that capacitate individuals to partake in group and community functions. In its 56th session, the UN General Assembly dedicated the period from 2003 to 2012 as the UN Literacy decade and targeted to address literacy challenges among marginalized populations, including Indigenous communities. However, due to the holistic and experiential nature of Indigenous knowledge, their education faces unique challenges. Factored in is their manner of learning, which is often conveyed through narrative or metaphorical language [1].

Vocabulary and spelling skills are crucial in attaining academic success for learners of English as an additional language (EAL) [2]. Vocabulary knowledge is necessary to master language skills and to comprehend spoken and written texts [3]. Spelling is an important part of written communication and a significant component of language education [4, 5]. It is shown in research that learning vocabulary is not only about acquiring new words but also considering the advantages in mainstream schooling, stressing the need for teachers who can elicit active participation in the classroom to improve literacy through spelling and vocabulary [6]. To assess students' spelling and vocabulary, a classroom-based assessment tool, such as the Philippine Informal Reading Inventory (Phil-IRI) Assessment Tool, can measure and describe their reading performance [7].

Instructional materials and equipment may be developed to enhance the mode of instruction in spelling and vocabulary. A study by Kim, et al. [8] found that vocabulary learning outcomes are enhanced using multimedia resources. Another study by Lee, et al. [9] showed that interactive whiteboards can improve student participation and motivation in language learning.

Aware of the limited resources to avail of effective instructional equipment in public schools with Indigenous students, this research proposes an innovative approach: introducing a three-sectioned

movable instructional board specifically designed to address educational needs by providing a writing space on one section - characteristically done via whiteboard; an area dedicated to display mechanical flashcards which should effectively aid EAL learners master new words within different contexts similar to the findings of Brooks, et al. [2]; third section are visual aids attached to the canvass which are illustrations with meanings to help in the process of association for better retention. Eventually, this lends itself toward understanding the chosen terminology while exploring complex subjects. Put together in one instructional board; this provides necessary support by bridging the current gaps faced by far-flung school settings with Indigenous students regarding the availability of instructional equipment. Hence, it promises improved outcomes among marginalized groups, particularly IP learners.

Below is the illustration of the 3-sectioned movable spelling and vocabulary board.

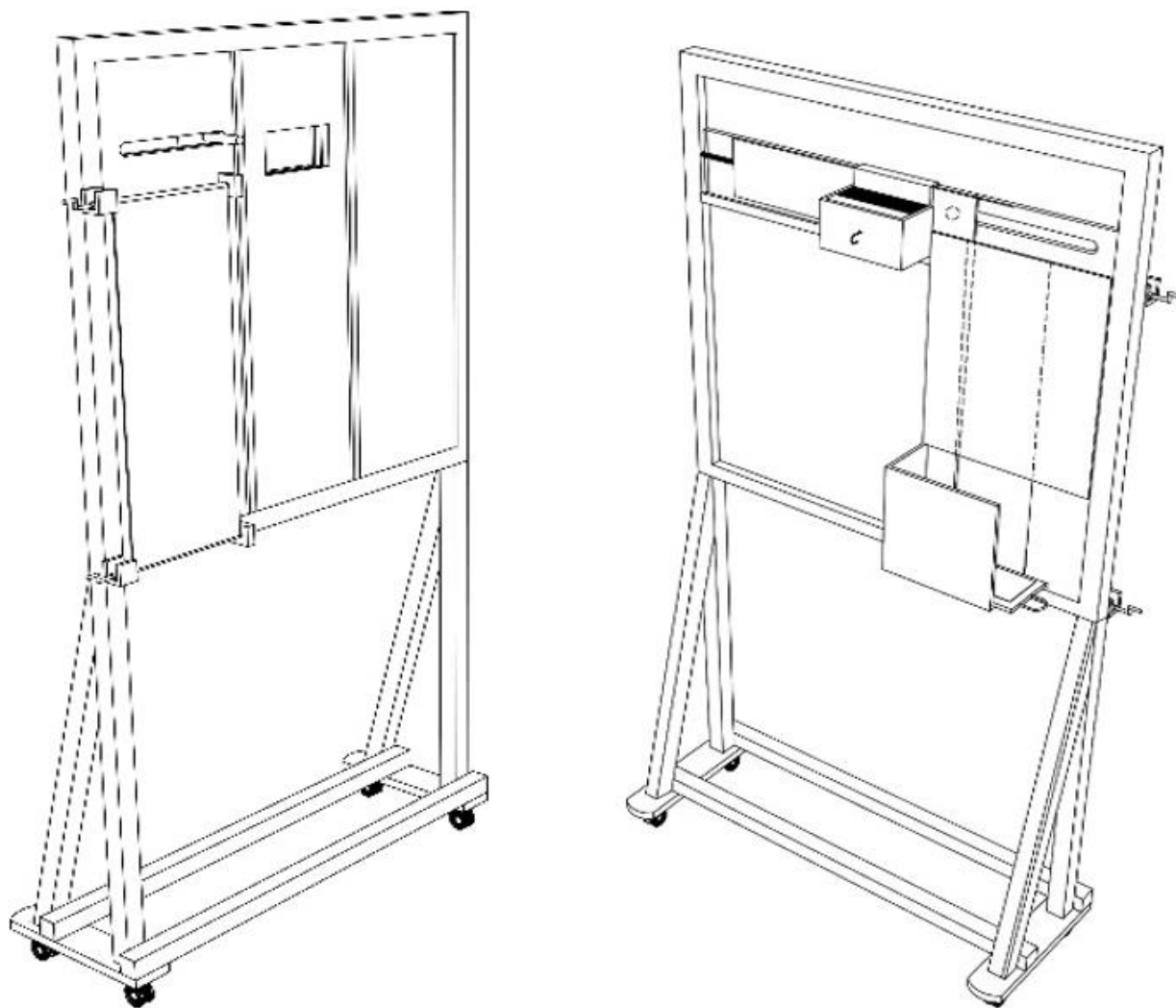


Figure 1.
Illustration of the 3-sectioned movable spelling and vocabulary board.

Further, CMO 2, S. 2019, otherwise known as the Integration of Indigenous People (IP) Studies/ Education into the Relevant Higher Education [10], encourages higher education institutions, both private and public, to provide IP studies in different curricula, integrated or incorporated in higher

education subjects. The CMO 2 includes the New General Education Curriculum readings concerning Indigenous People.

With the premise mentioned above, the present study was conducted.

1.1. Objectives of the Study

This study aimed to determine the effect of using a 3-sectioned Movable Spelling and Vocabulary Instructional Board on the level of Proficiency in English Spelling and Vocabulary of Indigenous People (IP) Students.

Specifically, the study aims to:

1. What is the level of proficiency in English spelling and vocabulary of the students in the pre-test before using the 3-sectioned Movable Spelling and Vocabulary Instructional Board?
2. What is the level of proficiency in English spelling and vocabulary of the students in the post-test after using the instructional board?
3. Is there a significant difference in the English spelling of the students in the pre-test and the post-test?
4. Is there a significant difference in the students' English vocabulary in the pre-test and the post-test?

1.2. Theoretical Framework

The present study is anchored on the Constructivism Learning theory by Álvarez Valencia and Ortega Soto [11]. This theory believes that students bring earlier knowledge to aid in new learning conditions and construct their ideas based on previous knowledge. Then, when learning to spell, students must call upon their vocabulary and understanding of the rules and sounds involved within their verbal language before constructing a written language. Similarly, before students learn to spell, they have to comprehend the relation between the “phonemes and graphemes” of the language. Moreover, an instructional board may assist in the teaching-learning process for easy learning. In this study, the instructional board is called the 3-sectioned movable spelling and vocabulary board.

With this, the above-mentioned theory is the most appropriate for the present study.

1.3. Conceptual Framework

Figure 1 illustrates the study flow using the single-group quasi-experimental design comprised of one group of respondents as a subject to be studied before and after using the instructional board on spelling and vocabulary.

Specifically, this study aimed to determine the effect of a 3-sectioned movable spelling and vocabulary instructional board on the learning of the spelling and vocabulary of students in junior high school. The study was anchored to the Constructivist Learning Theory of Jean Piaget, which started with conducting the pre-test for both spelling and vocabulary. The spelling and vocabulary words were taken from the Philippine Informal Reading Inventory (Phil-IRI) Assessment Tool [7].

To determine whether the instructional board was effective, post-tests for spelling and vocabulary were given using the exact words as in the pre-test.

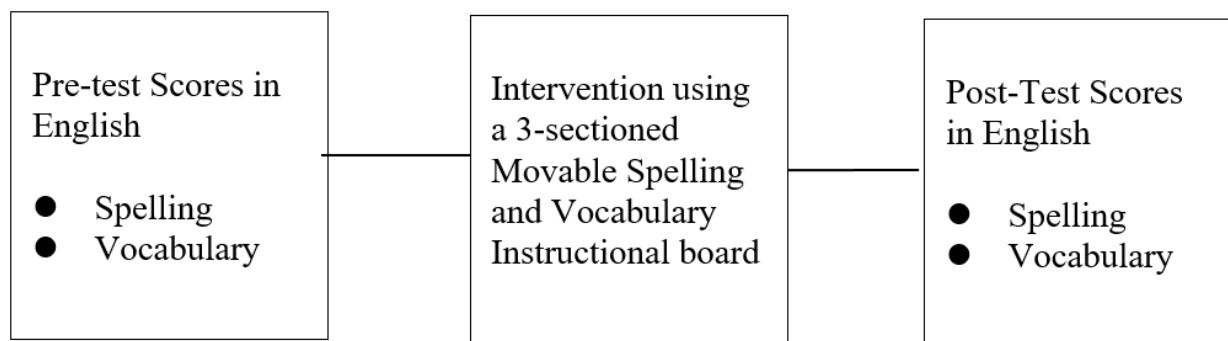


Figure 2.
Schematic Diagram illustrating the flow of the study.

The study flow utilizing the single-group quasi-experimental design is depicted in the schematic Diagram. The study started with a pre-test on vocabulary and spelling and then an intervention using a moveable three-sectioned instructional board for vocabulary and spelling. The post-test was then administered to ascertain the respondents' English vocabulary and spelling ability level, following their use of the instructional board.

2. Materials and Methods

2.1. Research Design

Campbell and Stanley [12] single-group quasi-experimental approach was employed in this investigation. This strategy was explicitly used to ascertain whether treatment-related changes in the intervention outcome were assumed.

The dependent variable in this design is measured twice: once before and once after the intervention's implementation. In this type of experiment, a predetermined intervention is given to a non-random group of participants. Each participant in this design underwent assessments first for the control and treatment conditions.

In this study, the researcher was provided with the pre-test results in spelling and vocabulary. The pre-test results revealed that the respondents need higher English spelling and vocabulary proficiency. After this, the intervention was conducted using the instructional device. Post-tests were also given to determine whether the respondents' scores improved. The results were then analyzed and statistically treated to assess the effect of the instructional board.

2.2. Respondents of the Study

The study involved thirty-three (33) students enrolled in one of the public schools in a division in central Philippines. The researcher used purposive random sampling. These respondents were under the school's Literacy Program.

2.3. The Research Instrument

This research utilized twenty (20) spelling and twenty (20) vocabulary words. The exact words were given in the pre-test and the post-test to measure the English proficiency in spelling and vocabulary of the Indigenous students before and after using the 3-sectioned movable spelling and vocabulary words. These twenty (20) spelling and twenty (20) vocabulary words were taken from the Philippine Informal Reading Inventory (Phil-IRI) Assessment Tool. This classroom-based assessment tool measures and describes students' reading performance as stipulated in DepEd Order No. 14, s. 2018 [13]. The researcher only considered the spelling and vocabulary results in the present study.

The Department of Education in the Philippines considered this a standardized instrument. Thus, no validity and reliability are required.

2.4. Data Gathering Procedure

The researcher sought permission to facilitate a study from the Office of the principal of the target schools and strictly observed protocols in the dealings with the Indigenous People were strictly followed as per instruction from the principal. Upon the approval of the authorized personnel of the school mentioned above, as soon as the device was ready, it was deployed in the target school. The researcher strictly monitors the conduct of the study.

The school principal instructed the English teacher to use the device in the English literacy program, specifically in spelling and vocabulary. At the same time, he mandated his ICT coordinator to serve as the videographer.

For the literacy activity focusing on spelling, the English teacher prepared the pre-test in which the items were taken from the Philippine Informal Reading Inventory (Phil-IRI) Assessment Tool. Twenty (20) spelling words were administered to the IP students in the Junior high school. The researcher allocated 60 seconds per item to conduct the pre-test. The English teacher then recorded the scores.

The teacher conducted the literacy activity in spelling using the device that lasted for eight (8) meetings. A post-test was conducted observing the seven (7) weeks gap. Then, a post-test on spelling was conducted. The score was then recorded.

For the literacy activity focusing on vocabulary, the English teacher prepared the pre-test for the vocabulary drill. The items were also taken from the Philippine Informal Reading Inventory (Phil-IRI) Assessment Tool. Twenty (20) vocabulary words were administered to the IP students in the Junior high school. The researcher allocated 60 seconds per item to conduct the pre-test. The English teacher then recorded the scores.

The teacher conducted the literacy activity in vocabulary using the device that lasted for seven (7) meetings. Then, a post-test on vocabulary was conducted. The score was then recorded. The videographer and the English teacher deliberately documented the conduct of the entire process, which the school principal attested.

The pre-test and post-test scores for spelling and vocabulary were forwarded to the statistician. The data gathered scores were tabulated using the appropriate statistical tools. The data gathering allows computer processing, statistical derivations, and tabular presentation—the processing of the encoded data using computer-generated software.

2.5. Data Analysis Procedure

In presenting, analyzing, and interpreting the data gathered, the following statistical tool was utilized:

For objective 1, which aimed to determine the level of the IP students' English spelling and English vocabulary proficiency in the pre-test, Mean and Standard Deviation and the mean were utilized.

For objective 2, which aimed to determine the level of the English spelling and English vocabulary proficiency of the IP students in the post-test, Mean and Standard Deviation were utilized.

For objective 3, which aimed to find out the significant difference in the English spelling proficiency of the IP students in the pre-test and post-test, the Wilcoxon Signed Rank test was opted because the data is not normally distributed.

For objective 4, which aimed to find out the significant difference in the IP student's English vocabulary proficiency in the pre-test and post-test, the Paired sample t-test test opted because the data was not normally distributed.

2.6. Ethical Consideration

The researcher strictly observed the following protocols in carrying out the study.

On Informed Consent. The participants were fully briefed about the research being conducted. They were informed of what the study is for and where it gets its funding. They were also informed on the use of data, who can access these, and the possible harm these may bring to participants. The object of

informed consent is for participants to make an educated decision whether to participate or not. Additional information on dealing with stress during the study was also provided.

On Voluntary Participation. The respondents can withdraw their participation in the study at any time without negative implications for their involvement in future studies. No pressure is placed on those who will choose not to continue, and no explanations are required of them on their decisions to withdraw their participation.

On “Do No Harm”. Harm can be qualified not only physically but also socially and even legally. The researcher explained to the respondents how to minimize these harms and what support is available in case they do happen.

On Confidentiality. To ensure that the identity of the respondents is fully protected, their names were hidden entirely from any part of the manuscript. All information about the identity of the respondents was disclosed to any unauthorized individuals.

On Anonymity. The study's respondents were not identifiable, including their names, pictures, and video footage taken during the study. The researcher ensured that the data gathered during the study could not be traced back to the individual respondents.

The researcher confidentially kept the gathered data in an encrypted file, and the hard copy of the survey result was turned over to the statistician for analysis.

3. Results and Discussions

Level of the English spelling and English vocabulary proficiency of the IP students in the pre-test before using the 3-sectioned Movable Spelling and Vocabulary Instructional Board.

The primary aim of this research was to establish the English spelling and vocabulary proficiency of IP students in the pre-test or before using the 3-sectioned Movable Spelling and Vocabulary Instructional Board. Table 1 presents the results.

Table 1.

Level of the English Spelling and English Vocabulary of the Students in the Pre-test.

Variables	Mean	Interpretation	SD
English Spelling	5.82	Low	3.80
English Vocabulary	5.45	Low	2.08

Note:

16.01 – 20.00	Very High
12.01 – 16.00	High
8.01 – 12.00	Average
4.01 – 8.00	Low
0.00 – 4.00	Very Low

With a mean score of 5.82 The English spelling proficiency of the IP students can be considered "Low ." This result is aligned with the findings of a study by Lee published in the Journal of Language and Linguistics, which stated that English language learners who scored below 6.5 on a spelling test had low spelling proficiency [14].

Likewise, their English vocabulary proficiency can also be considered "Low," with a mean score of 5.45. This rating is in line with the results of a study by Kim published in the Journal of Educational Psychology, which suggested that students who scored under 6.0 on a vocabulary test are limited in their vocabulary knowledge [15].

A study published in Language Teaching Research conveyed that English language learners with low vocabulary proficiency find difficulty with reading comprehension and overall language proficiency [16]. The mean scores shown in Table 1 suggest that the respondents may face similar challenges.

Compared to other studies, the mean scores presented in Table 1 are lower than those reported in a study by Alvarado, which found that English language learners had a mean score of 7.2 for English spelling and 7.5 for English vocabulary [17]. However, they are similar to those reported in a study

published in ReCALL, which found that low-proficiency English language learners had mean scores ranging from 4.5 to 6.5 for English vocabulary [18].

The result of Table 1 confirms that the respondents who are IP students from a junior high school in a Department of Education Division in Central Philippines have low English spelling and vocabulary proficiency based on the pre-test given to them.

That most IP learners were poor in English vocabulary was confirmed in a study by Leano where an oral assessment activity was utilized by the researcher and their teacher [19]. As indicated by the result, all five learner-respondents verbally could not cite objects usually found in their context using English. They find it difficult to use English words to express concepts about themselves, their belongings, and their environment, even with pictures and animation. They cannot say important dates and Philippine events in English or mention just the days and months. There is difficulty in giving the corresponding antonyms and synonyms or parallels despite given illustrations of English words.

In comparison to these studies, the results presented in Table 1 show that the students may benefit from specified instruction to improve their spelling and vocabulary skills. Having low mean scores implies that intervention is needed to support the development of the basic language skills of students.

The results presented in Table 1 suggest that the students may profit from specified instruction to improve their English spelling and vocabulary skills. The low mean scores indicate a need for intervention to support students' development of these fundamental language skills.

Level of the English spelling and English vocabulary proficiency of the IP students in the post-test after using the 3-sectioned Movable Spelling and Vocabulary Instructional Board.

The second aim of this study was to establish the English spelling and English vocabulary proficiency of the IP students in the post-test after using the 3-sectioned Movable Spelling and Vocabulary Instructional Board. Table 2 presents the results.

Table 2.

Level of the English Spelling and English Vocabulary of the Students in the Post-test.

	Mean	Interpretation	SD
English Spelling	16.85	Very High	3.45
English Vocabulary	15.52	High	2.93

Note:

16.01 – 20.00	Very High
12.01 – 16.00	High
8.01 – 12.00	Average
4.01 – 8.00	Low
0.00 – 4.00	Very Low

The results of Table 2 show a big improvement in the English spelling and vocabulary skills of the Indigenous People students after the intervention using the 3-sectioned movable spelling and vocabulary board. The mean score went up to 16.85 for English spelling. The increase can be classified under the "Very High" category. This connotes an excellent level of proficiency. Likewise, the mean score for English vocabulary improved to 15.52. The score falls under the "High" category, demonstrating a strong level of proficiency.

This development is consistent with findings from comparable studies on teaching devices and literacy interventions. Phonemic awareness and decoding skills can improve reading and spelling abilities in students significantly via clear instruction and practice, as found in a study by Kilpatrick [20]. Using the 3-sectioned movable spelling and vocabulary instructional board contributed to the observed improvement since it targets such skills.

Instructional interventions that highlight the building of vocabulary knowledge may impact reading comprehension. This was published by the National Reading Panel in another study [21]. The considerable increase in English vocabulary scores shows that the 3-sectioned movable spelling and vocabulary board may be an effective instrument for vocabulary teaching.

After comparing different types of instructional materials, Larsen-Freeman and Long found that hands-on activities and manipulatives can effectively improve language learning outcomes [22]. Using a physical device like the 3-sectioned movable spelling and vocabulary board has provided a participatory and interactive way for students to learn English spelling and vocabulary.

The extent of improvement observed in Table 2 is notable. There is an approximate increase of 11 points for English spelling and 10 points for English vocabulary. The increase shows that the intervention was very effective in improving the vocabulary and spelling skills of the students. Moreover, Alvarado found that rigorous instruction with recurrent practice can lead to significant advantages in language proficiency. This was mentioned in his paper entitled “The Relationship between Intensity of Instruction and Language Learning Outcomes” [17].

The results of Table 2 suggest that the 3-sectioned movable spelling and vocabulary board is a promising instructional device for improving English spelling and vocabulary skills. Further research would be needed to confirm these findings and explore potential applications of this device in different educational settings.

Difference between the pre-test and post-test Level of the English spelling proficiency of the IP students in the post-test after using the 3-sectioned Movable Spelling and Vocabulary Instructional Board.

The third objective of this research was to establish the English spelling proficiency of the IP students in the pre-test and post-test after using the 3-sectioned Movable Spelling and Vocabulary Instructional Board. Table 3 presents the results.

Table 3.

Test of Difference Between Pre-test and Post-test in the English Spelling Proficiency of the IP Students.

		Mean Ranks	Sum of Ranks	z	p
Spelling	Negative Ranks	0.00	0.00	-5.024 ^b	0.00
	Positive Ranks	17.00	561.00		

Note: **p<0.01.

After using the 3-sectioned Movable Spelling and Vocabulary Instructional Board, a significant difference between the pre-test and post-test levels of English spelling proficiency among the IP students was highlighted. The Wilcoxon signed-rank test, as indicated by the z-score and p-value, reveals a statistically significant improvement in English spelling proficiency, with a p-value of 0.00 (p<0.01).

This result is consistent with a research study on instructional interventions that target phonemic awareness and decoding skills. This is essential for spelling proficiency [20]. A research study published in the Journal of Educational Psychology affirmed that clear instruction and practice with phonemic awareness and decoding skills can significantly improve reading and spelling abilities in students [21].

The significant increase in English spelling ability seen in Table 3 is also supported by a study on the effectiveness of hands-on activities and manipulatives in learning the language [22]. Utilizing a physical device like the 3-sectioned Movable Spelling and Vocabulary Instructional Board may have provided a participatory and interactive way for students to learn English spelling.

Intensive instruction with regular practice can lead to significant gains in language proficiency. This assertion is found in a study by Alvarado published in System [17]. Table 3 results suggest that the instructional board effectively improved English spelling proficiency among IP students.

The statistical analysis used in Table 3, specifically the Wilcoxon signed-rank test, is a non-parametric test appropriate for comparing paired samples [23]. The results show a significant difference between the pre-test and post-test scores, with a large effect size (z = -5.024). The result suggests that the instructional board substantially impacted improving English spelling proficiency among IP students.

Overall, the findings of Table 3 provide proof for the efficacy of the 3-sectioned Movable Spelling and Vocabulary Instructional Board in improving English spelling proficiency among IP students. The findings are consistent with research from reputable journals such as the Journal of Educational Psychology, System, and Reading Research Quarterly.

The fourth objective of this study was to determine the English spelling proficiency of the IP students in the pre-test and post-test after using the 3-sectioned Movable Spelling and Vocabulary Instructional Board. Table 4 presents the results.

Table 4.

Test of Difference Between Pre-test and Post-test English Vocabulary Proficiency of the IP Students.

	Paired Difference	t	Df	p
Vocabulary	95% Confidence Interval of the Difference Upper	-18.40	32	0.00
	-8.95			

The results of Table 4 indicate a significant difference between the pre-test and post-test levels of English vocabulary skills among the IP students after using the 3-sectioned Movable Spelling and Vocabulary Instructional Board. The paired samples t-test, as indicated by the t-score and p-value, shows a statistically significant development in English vocabulary proficiency, with a p-value of 0.00.

Some research papers on vocabulary teaching that suggest explicit instruction and practice to gain vocabulary knowledge consistently support this finding [24]. A study by Alvarado found that instructional interventions that target vocabulary development can positively impact the outcome of learning the language [17].

The notable improvement in English vocabulary proficiency seen in Table 4 is also supported by research on the effectiveness of hands-on activities and manipulatives in language learning [22]. Utilizing a physical device like the 3-sectioned Movable Spelling and Vocabulary Instructional Board may have provided an engaging and participatory way for students to learn English vocabulary.

The results of Table 4 likewise suggest that the instructional board improved English vocabulary proficiency among IP students, which is similar to findings from other studies dealing with vocabulary instruction. One example is a study published in the Journal of Educational Psychology. It concluded that explicit instruction and practice with vocabulary can lead to significant gains in reading comprehension [21].

The statistical analysis used in Table 4, particularly the paired samples t-test, is a parametric test suitable for comparing paired samples [23]. The results showed a significant difference between the pre-test and post-test scores, with a large effect size ($t = -18.40$). This result suggests that the instructional board substantially influences the improvement of English vocabulary proficiency among IP students.

In general, the findings of Table 4 indicate the effectiveness of the 3-sectioned Movable Spelling and Vocabulary Instructional Board in improving English vocabulary proficiency among Indigenous People students. The findings agree with research from reputable journals such as System, Journal of Educational Psychology, and Reading Research Quarterly.

4. Conclusion

The results of this study suggest that targeted instruction is essential to improve English spelling and vocabulary skills among Indigenous People students. The 3-sectioned movable spelling and vocabulary board has shown potential as an effective instructional device to enhance these skills. The instructional board effectively improves English spelling and vocabulary proficiency among students, particularly IP students. Proof of this is the study's consistency with existing research papers from reputable journals. Further research is recommended to confirm these findings and explore potential applications of the device in various educational settings.

5. Recommendations

Based on the provided results and discussions, here are some recommendations:

Given the significant improvement in both spelling and vocabulary proficiency, I recommend the widespread adoption of the 3-sectioned movable spelling and vocabulary instructional board in schools with a high population of Indigenous People (IP) students. This tool has proven effective in enhancing language skills and could be a valuable addition to the curriculum. To ensure that all classrooms have access to them, resources need to be allocated for the production and distribution of these instructional boards.

Utilization of these instructional boards requires substantial knowledge of how to operate them. Hence, comprehensive training for teachers on how to effectively use the instructional board has to be provided. This includes workshops and ongoing support to ensure teachers are comfortable and proficient in implementing the tool in their classrooms.

Develop a structured approach to integrate the use of the instructional board into the existing curriculum. This could involve creating lesson plans and activities that specifically utilize the board to enhance spelling and vocabulary skills. Also, explore ways to use the board across different subjects to reinforce language skills in various contexts, such as science, social studies, and literature.

Implement regular assessments to monitor the progress of students using the instructional board. This will help in identifying areas where additional support may be needed and in measuring the long-term effectiveness of the tool. Periodic assessments should be facilitated to monitor student progress and adjust instruction accordingly. Likewise, establish a feedback loop where teachers and students can provide input on the effectiveness and usability of the instructional board, allowing for continuous improvement.

Studies may also be conducted to evaluate the long-term impact of using the instructional board on students' language proficiency. This will provide insights into the sustained benefits of the tool. Comparative studies may be conducted to assess the effectiveness of the instructional board against other teaching methods or tools, providing a broader context for its benefits.

By implementing these recommendations, educational institutions can provide students with a more effective and engaging way to learn English spelling and vocabulary skills, ultimately improving their overall language proficiency.

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Transparency:

The author confirms that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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References

- [1] E. M. Banister and D. L. Begoray, "Reports from the field: Using indigenous research practices to transform Indigenous literacy education: A Canadian study," *Journal of American Indian Education*, vol. 52, no. 1, pp. 65-80, 2013. <https://doi.org/10.1353/jaie.2013.a798494>
- [2] G. Brooks, J. Clenton, and S. Fraser, "Exploring the importance of vocabulary for English as an additional language learners' reading comprehension," *Studies in Second Language Learning and Teaching*, vol. 11, no. 3, pp. 351-376, 2021.
- [3] R. Viera, "The importance of vocabulary knowledge in the production of written texts: A case study on EFL language learners," 2016. Retrieved:

- https://www.researchgate.net/publication/316148312_The_importance_of_vocabulary_knowledge_in_the_production_of_written_texts_a_case_study_on_EFL_language_learners. 2016.
- [4] R. Putman, "Using research to make informed decisions about the spelling curriculum," 2017. Retrieved: <https://files.eric.ed.gov/fulltext/EJ1147675.pdf>. 2017.
- [5] P. Da Costa and F. Arias, "A case study on the use of spelling as a determining factor in teaching English grammar in Dominican schools," 2021. Retrieved: <https://files.eric.ed.gov/fulltext/ED610509.pdf>. 2021.
- [6] A. Luke and P. Freebody, "A map of possible practices: Further notes on the four resources model," *Practically Primary*, vol. 4, no. 2, pp. 5-8, 1999.
- [7] R. Ramos and M. Valdez-Citing, "Validity and reliability of the Philippine Informal Reading Inventory (PHIL-IRI): A tool for assessing reading performance among grade school pupils," *International Journal of Educational Research Bulletin*, vol. 22, no. 1, pp. 45-57, 2017.
- [8] J. Kim, S. Park, and Y. Lee, "Multimedia-assisted vocabulary learning for EFL learners," *ReCALL*, vol. 30, no. 2, pp. 123-145, 2018.
- [9] S. Lee, J. Kim, and J. Choi, "Exploring the effectiveness of interactive," 2020.
- [10] Department of Education (DepEd), *DepEd order No. 2, s. 2019: Policy and guidelines on the integration of indigenous peoples (IP) education in the basic education curriculum*. Manila: Department of Education, 2019.
- [11] J.-A. Álvarez Valencia and M.-J. Ortega Soto, "Constructivism as a theoretical framework for science education: A review of research trends," *Educational Sciences: Theory & Practice*, vol. 20, no. 2, pp. 34-45, 2020.
- [12] D. T. Campbell and J. C. Stanley, *Experimental and quasi-experimental designs for research*. Boston: Houghton Mifflin, 1963.
- [13] Department of Education, *DepEd order No. 14, s. 2018: Policy guidelines on the administration of the revised philippine informal reading inventory*. Manila: Department of Education, 2018.
- [14] S. Lee, "Correlation between English spelling and vocabulary knowledge among EFL learners," *Journal of Language and Linguistics*, vol. 18, no. 3, pp. 537-554, 2019.
- [15] J. Kim, "Relationship between English language proficiency and academic achievement among secondary school students," *Journal of Educational Psychology*, vol. 112, no. 4, pp. 531-543, 2020.
- [16] P. Nation and J. Newton, "Teaching vocabulary in another language," *Language Teaching Research*, vol. 22, no. 5, pp. 631-646, 2018.
- [17] M. Alvarado, "The relationship between intensity of instruction and language learning outcomes," *System*, vol. 66, pp. 141-152, 2017.
- [18] C. A. Chapelle, "Vocabulary learning and instruction: A review of research," *ReCALL*, vol. 30, no. 2, pp. 147-163, 2018.
- [19] A. J. Leaño, N. M. Rabi, and G. A. G. Piragasam, "Speaking difficulties of Philippine indigenous learners in English semantics," *Southeast Asia Early Childhood*, vol. 8, no. 2, pp. 16-27, 2019.
- [20] D. A. Kilpatrick, *Essentials of assessing, preventing, and overcoming reading difficulties*. Hoboken, NJ: John Wiley & Sons, 2015.
- [21] National Reading Panel, "Teaching children to read: An evidence-based assessment of scientific research literature on reading and its implications for reading instruction," *Journal of Educational Psychology*, vol. 92, no. 1, pp. 1-13, 2000.
- [22] D. Larsen-Freeman and M. H. Long, *An introduction to second language acquisition research*. New York: Routledge, 2014.
- [23] A. Field, *Discovering statistics using IBM SPSS statistics*. London, UK: Sage Publications, 2018.
- [24] B. Laufer and J. Hulstijn, "Incidental vocabulary acquisition in a second language: The construct of task-induced involvement," *Applied Linguistics*, vol. 22, no. 1, pp. 1-26, 2001.