An Experimental Study on the Effectiveness of Total Physical Response (TPR) in Vocabulary Development Among Grade 1 Students

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ABSTRACT

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| This study investigated the effectiveness of the Total Physical Response (TPR) method in enhancing English vocabulary acquisition among Grade 1 students at Judge Ernesto Nombrado Memorial School in the Philippines. Using a one-group pre-test–post-test experimental design, fifteen students participated in five TPR-based instructional sessions. A researcher-made vocabulary test, validated (Aiken’s V = 0.91) and found reliable (Cronbach’s α = 0.776), measured learning gains. Pre-test scores had a mean of 6.87 (Did Not Meet Expectations), while post-test scores rose to 12.53 (Very Satisfactory), indicating substantial improvement. A t-value of 9.338 and a Cohen’s d of 2.411 confirmed a statistically significant and large effect. These findings support the integration of kinesthetic strategies like TPR into early-grade vocabulary instruction to promote meaningful and engaging learning experiences. |

*Keywords: Total Physical Response, vocabulary development, kinesthetic learning, Grade 1 students, language acquisition*

1. INTRODUCTION

Vocabulary is the set of words known and used by a person in communication (Susanto, 2017). It plays a crucial role in literacy development, as vocabulary knowledge influences reading comprehension, writing, and the ability to express thoughts effectively (Majeed, 2023). However, many students struggle to fully understand the meaning, context, and proper usage of words (Behrens, 2018). This gap in vocabulary knowledge hinders their academic success and cognitive development, particularly in the early years of schooling (Green & McLachlan, 2024).

Global studies consistently point to significant challenges in vocabulary among primary-grade students (OECD, 2019). A study by the National Center for Education Statistics (2022) in the United States revealed that fourth and eighth graders tested were able to recognize the correct meaning of only around half the words selected from the test's reading comprehension passages. Students' performance on vocabulary questions closely mirrored their oeverall reading comprehension scores. In India, nearly 50% of Grade 1 students are unable to read a simple paragraph, highlighting a significant gap in early literacy (Chiplunkar et al., 2023). These findings underscore the critical need for effective vocabulary instruction to address the significant learning gaps that hinder academic success across diverse contexts (Moody et al., 2018).

In the 2022 PISA rankings, the Philippines ranked low in reading, mathematics, and science, with the reading score increasing from 340 in 2018 to 347 but still below the global average of 476. Several studies also support the claim that Filipino students have poor English proficiency, with most students performing at the instructional level in literal taxonomy (Larioque, 2019). This issue was evident at Paaralang Elementarya ng Tipas, where the DepEd's Philippine Informal Reading Inventory (PHIL-IRI) showed that Grade Five students struggled with vocabulary, frequently mispronounced and repeated English words, and fell into the "frustration" category. Similarly, observations conducted at Judge Ernesto Nombrado Memorial School revealed that Grade 1 students struggled to understand and use new vocabulary, further highlighting the communication gap between teachers and students that hinders the teaching and learning process.

Inciman Celik et al. (2018) highlight that while several vocabulary teaching strategies have been explored in the literature, few studies have specifically examined the effectiveness of Total Physical Response (TPR) in enhancing vocabulary among Grade 1 students. TPR, developed by James Asher, is a method that combines physical movement with language learning (Cheng, 2019). By associating words with corresponding actions, TPR helps students retain and understand vocabulary more effectively (Sumarni et al., 2022). This approach has been demonstrated to support the language development of young students (Xie, 2021). Given the challenges students face with traditional vocabulary teaching methods, the researchers aimed to investigate the potential of TPR as an intervention to improve vocabulary among Grade 1 students. This study explores how TPR can enhance students' ability to learn and retain new words. It contributes to the growing body of knowledge on the effectiveness of TPR as a dynamic and engaging tool for early education.

2. OBJECTIVES

This study aimed to attain the following objectives:

1. To assess the level of vocabulary development among Grade 1 students at Judge Ernesto Nombrado Memorial School based on their pre-test scores.
2. To evaluate the level of vocabulary development among the same students based on their post-test scores.
3. To determine whether there is a significant difference between the pre-test and post-test scores of the Grade 1 students in vocabulary development.

3. MATERIALS AND METHODS

Research Design

This study employed an experimental research design, specifically a one-group pre-test–post-test model, which is commonly used to evaluate the effect of an intervention on a single group without a control group (Cohen, Manion, & Morrison, 2018). This design was employed to evaluate the effectiveness of the Total Physical Response (TPR) method in improving vocabulary among Grade 1 students by comparing their vocabulary scores before and after the intervention. It allowed the researchers to measure the students’ progress over time and assess the instructional impact of TPR in a real classroom setting. The pre-test provided baseline data, while the post-test measured learning gains after the TPR-based instruction. This approach was both practical and ethically suitable for an educational context involving young children, as all participants received the intended instructional support while researchers collected meaningful data.

**Research Instrument**

The primary research instrument used in this study was a researcher-designed vocabulary test developed to assess the effectiveness of the Total Physical Response (TPR) method in enhancing vocabulary among Grade 1 students. The test was specifically developed to align with the learning competency "Give the meaning of words through clues", as outlined in the curriculum standards.

Initially, the instrument consisted of 20 test items. However, after aligning the assessment with the actual competencies covered per lesson, the number of items was reduced to 15. This adjustment ensured that each item matched the specific vocabulary content and instructional scope delivered during the intervention, enhancing the instrument's curricular alignment and construct validity.

The test underwent a rigorous content validation process involving three education experts who evaluated its relevance, clarity, and alignment with intended learning outcomes. The validation process yielded an Aiken V coefficient of 0.91, indicating excellent content validity. Furthermore, a pilot test was conducted at Sta. Filomena Elementary School yielded a Cronbach's alpha coefficient of 0.776, indicating a high level of internal consistency and overall reliability.

**Study Participants**

This study involved Grade 1 students who took part in a vocabulary intervention using the Total Physical Response (TPR) method. The research employed a one-group pre-test-post-test experimental design to measure the effectiveness of the strategy. A total of fifteen (15) Grade 1 students from Judge Ernesto Nombrado Memorial School served as the research respondents. The respondents were selected based on their enrollment status, developmental appropriateness for TPR activities, and availability throughout the study duration. Only students who completed both the pre-test and post-test were included in the final analysis. To maintain the reliability of the results, students who were absent during the post-test were excluded. The researchers obtained informed consent from parents or guardians in accordance with ethical research standards for studies involving minors.

**Data Gathering**

The researchers followed the following procedures in conducting the research action:

1. **Obtaining Research Ethical Clearance.** The first step in the data-gathering process was to secure ethical clearance from the UREB. This involved submitting a research proposal that outlined the study's goals, methods, and how participant confidentiality would be protected. The UREB reviewed the proposal to ensure it met ethical standards. Once approved, any feedback was addressed, allowing the research to proceed with the necessary ethical safeguards in place.
2. **Content Validity of Questionnaires.** The vocabulary test underwent expert review by three specialists in early childhood education using a standardized evaluation tool. Their assessments yielded an Aiken’s V coefficient of 0.91, which signifies excellent content validity, confirming that the test was clear, relevant, and well-aligned with the DepEd learning competency: “Give the meaning of words through clues.”
3. **Pilot Testing to Test Reliability.** To ensure the reliability of the vocabulary test, a pilot test was conducted at Sta. Filomena Elementary School with a comparable group of Grade 1 students. The analysis of students’ responses produced a Cronbach’s alpha of 0.776, indicating an acceptable level of internal consistency for an instrument used with early primary-level students.
4. **Asking Permission from the Parents.** Recognizing the ethical considerations involved in research with minors, the researchers obtained informed consent from the parents or legal guardians of all participants. The purpose, procedures, and voluntary nature of the study were communicated, along with assurances of confidentiality and the participant's right to withdraw at any time.
5. **Administering of Pre-test Questionnaires.** The researchers administered the pre-test questionnaires to the students to assess their baseline vocabulary knowledge related to the stated objectives. This pre-test served as an initial evaluation to preview the upcoming activities and identify areas where the students needed to focus their learning.
6. **Retrieving the Pre-test Questionnaire.** After the students completed the pre-test administered by the researchers, the questionnaires were collected. The data gathered from the pre-test were then tallied, encoded, analyzed, and interpreted.
7. **Conducting the Intervention.** The research was conducted personally, and the respondents were able to participate in the activities. Before the proper course of action, the researchers first introduced themselves and explained the rationale of the activity, which included vocabulary activities using the TPR method. This explanation ensured that the participants could follow through smoothly.
8. **Administering of Post-test questionnaire.** After completing the series of TPR-based instructional sessions, a post-test was administered using the same validated vocabulary instrument. This post-intervention assessment measured any improvement in learners' vocabulary performance, allowing the researcher to evaluate the effectiveness of the TPR method. Only students who completed both the pre-test and post-test were included in the final analysis to ensure data integrity and accuracy.
9. **Retrieving Post-test Questionnaire.** After the students completed the post-test, the questionnaires were collected. The post-test data were tallied, encoded, analyzed, and interpreted. As for the administration of the pre-test and post-test, they were conducted for at least forty-five (45) minutes to one (1) hour and were administered during the allocated time for their reading habit.
10. **RESULTS AND DISCUSSION**

**Level Of Pre-Test Scores**

Table 1 shows that prior to the intervention, Grade 1 students obtained a mean pre-test score of 6.87 (SD = 1.77) out of a total of 15 items. According to the DepEd K to 12 transmutation guidelines, this score corresponds to a grade of 71, which falls under the category “Did Not Meet Expectations.” This indicates that students demonstrated limited vocabulary knowledge before the TPR intervention.

This observation is supported by Mohd Tahir et al. (2020), who emphasized that such challenges often arise when students are not equipped with strategies that facilitate deep vocabulary processing, making it harder for them to internalize and recall word meanings. Furthermore, Palermo (2024) emphasized that limited exposure to vocabulary, both in and out of the classroom, hinders students from fully grasping the use and meaning of new words. Supporting this, Hibatullah (2019) noted that insufficient language exposure in early educational environments significantly contributes to young students' difficulties in recognizing and understanding vocabulary. These observations confirm the pre-test results and underscore the importance of adopting methods that foster meaningful engagement with language.

Moreover, these findings are consistent with Palermo’s (2024) assertion that early-grade students require rich and meaningful exposure to vocabulary for successful acquisition. The limited pre-test performance may reflect the continued reliance on rote memorization and passive instructional approaches, which Zoch (2017) criticized for failing to support students in retaining or applying new vocabulary in a meaningful way be placed below the table with superscript lowercase letters. Sample table format is given below.

Table 1. Level of Pre-test Scores

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Total Score** | **Mean** | **Std. Deviation** | **Transmuted Grade** | **Interpretation** |
| Pre-test | 15 | 6.87 | 1.77 | 71 | Did Not Meet Expectation |

**Levels of Post-test Scores**

Following the intervention using the Total Physical Response (TPR) method, students' vocabulary performance significantly improved. Table 2 shows that the mean post-test score was 12.53 (SD = 2.00), corresponding to a transmuted grade of 89 or “Very Satisfactory” based on DepEd standards.

This improvement reflects the benefits of movement-based learning. Amalia Putri (2024) and Crandall (2022) emphasized that TPR is particularly suitable for young students due to their strong kinesthetic learning preferences. When children physically enact the meaning of words, they build stronger memory associations, as demonstrated by Rambe (2019) and Dongsanniwas and Sukying (2024). These multisensory connections make vocabulary not only easier to understand but also more likely to be retained over time.

Moreover, the high post-test performance aligns with the findings by Kara and Eveyik-Aydın (2019), who noted that TPR enhances both receptive and expressive language skills by linking motor activity with linguistic input. Rahmadani (2019) further observed that this method reduces cognitive load, helping young students absorb new words more efficiently. The students’ improved scores in this study reflect these cognitive benefits, showing that TPR not only engages students but also scaffolds their language processing.

Additionally, researchers such as Yuquilema Mullo (2024) and Magnussen & Sukying (2021) emphasized that TPR facilitates meaningful use of vocabulary by embedding words in contextually relevant, physical scenarios. This was especially evident in the present findings, where students demonstrated the ability to understand and use vocabulary with greater accuracy and fluency after repeated TPR activities.

In conclusion, the substantial increase in post-test scores confirms the effectiveness of TPR in improving vocabulary performance among Grade 1 students. The approach’s interactive, sensory-rich, and developmentally aligned nature created an engaging learning environment that significantly supported students’ language growth.

Table 2. Level of Post-test Scores

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Total Score** | **Mean** | **Std. Deviation** | **Transmuted Grade** | **Interpretation** |
| Post-test | 15 | 12.53 | 2.00 | 89 | Very Satisfactory |

**Difference Between the Pre-test Scores and Post-test Scores**

The analysis in Table 3 indicates a statistically significant improvement in vocabulary performance among Grade 1 students following the Total Physical Response (TPR) intervention. The mean score increased from 6.87 (SD = 1.77) in the pre-test to 12.53 (SD = 2.00) in the post-test. A paired samples t-test confirmed that this difference was significant, t(14) = 9.34, p < .001, with a 95% confidence interval of [4.27, 6.93]. This result suggests that the observed gains in vocabulary were not due to chance. The calculated effect size was large (d = 2.411), indicating a substantial impact of the TPR method on students’ vocabulary acquisition. These findings are consistent with prior research supporting the use of kinesthetic learning strategies to enhance vocabulary retention, especially among young sttudents. The results validate the integration of TPR as an effective instructional approach for early-grade vocabulary development.

Previous studies support this finding. For instance, Sholikha (2018) reported an increase in vocabulary scores from 81.07 to 96.05, accompanied by a significant t-value. Similarly, Sabban and Wahid (2021) found that students exposed to TPR exhibited enhanced vocabulary retention and greater engagement. These results, supported by Putri (2024), align with the core premise of kinesthetic learning, where physically acting out vocabulary terms reinforces both comprehension and memory. Thus, the present study's findings are consistent with a broader body of evidence demonstrating the effectiveness of TPR in vocabulary acquisition.

Moreover, Dongsanniwas and Sukying (2024) emphasized that physical movement significantly enhances multisensory engagement, thereby improving vocabulary retention. In a similar vein, Rambe (2019) noted that students who physically enact vocabulary develop stronger semantic connections, which aid both immediate comprehension and long-term memory. Furthermore, Crandall (2022) highlighted that kinesthetic strategies are particularly effective for young students whose cognitive development is driven by sensory and experiential input.

Further reinforcing the effectiveness of TPR is Cohen's d value of 2.411, representing a very large effect size. According to Cohen (1988), a value above 0.8 already indicates a large effect, making this result particularly noteworthy. Supported by comparative findings, Al Firdaus and Rahmawati (2024) also observed a Cohen’s d of 2.197 in a study that utilized kinesthetic digital tools to support vocabulary learning.

Correspondingly, the study's findings align with Piaget's Cognitive Development Theory, particularly the pre-operational stage (ages 2–7), which emphasizes learning through symbolic play, sensory experiences, and physical interaction. As McLeod (2024) posits, children in this developmental phase construct knowledge through active engagement with their environment. TPR supports this process by linking language learning with motor actions, thereby making abstract vocabulary concepts more concrete and tangible. Therefore, the use of TPR not only enhances vocabulary learning but also aligns developmentally with how young students naturally acquire and process new information.

Table 3. Mean Comparison Between Pre-test and Post-test Scores

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Mean** | **Std. Deviation** | **t-value** | **Degrees of freedom (df)** | **p-value** | **95% CI** | **Cohen’s d coefficient** |
| Pretest | 6.87 | 1.77 | 9.338 | 14 | <.001 | [4.27, 6.93] | 2.411 |
| Posttest | 12.53 | 2.00 |  |

**Implications for Vocabulary Development**

This study demonstrated that Total Physical Response (TPR) is a powerful strategy for enhancing vocabulary learning among Grade 1 students. Through physical movement and active participation, learners were able to connect new words with concrete actions, making it easier to understand and remember meanings. Instead of relying on memorization or passive drills, TPR transforms vocabulary instruction into an engaging and playful experience that keeps young students motivated and involved.

The use of gestures, routines, and repetition helped reinforce word associations and improved students’ confidence in using language. Many students who typically struggle with attention or verbal participation were more responsive during lessons when movement was included. TPR also proved to be an inclusive approach, benefiting students with different styles, whether they learn best by seeing, hearing, or doing. This study supports the idea that matching teaching strategies with students’ preferred styles can enhance language outcomes. Bouzayenne (2023) found that students’ learning style preferences influence their engagement and success in EFL learning, highlighting the need for flexible and responsive teaching methods like TPR, which cater kinesthetic and visual learners alike.

Teachers can apply TPR with little to no technology, making it an accessible and cost-effective method, especially in schools with limited resources. Overall, this approach offers a straightforward yet impactful way to enhance early vocabulary development, making it more meaningful, enjoyable, and effective in any classroom setting.

5. Conclusion

Conclusion

This study aimed to examine the effectiveness of the Total Physical Response (TPR) method in enhancing vocabulary among Grade 1 students. The findings revealed that prior to the intervention, students performed below expectations, with a mean pre-test score of 6.87 (transmuted grade of 71), indicating limited ability to determine word meanings using clues. Following the implementation of TPR through five tutorial sessions, students showed marked improvement, with a post-test mean score of 12.53 (transmuted grade of 89), falling within the "Very Satisfactory" range. The significant difference between pre-test and post-test scores (t = 9.338, p = 0.001) confirms the effectiveness of TPR in facilitating vocabulary acquisition. Furthermore, a Cohen’s d effect size of 2.411 signifies a very large impact. These results suggest that integrating physical movement with verbal instruction through TPR helps young students engage more actively and meaningfully with vocabulary, thereby enhancing both comprehension and retention. The approach aligns with developmental theories that support active, sensory-rich learning environments for early childhood education.

However, this study is not without limitations. First, the sample size was relatively small (n = 15), which may limit the generalizability of the findings to broader populations. Second, the study utilized a one-group pre-test–post-test design without a control group, which makes it difficult to rule out other external factors influencing vocabulary improvement. Future research is recommended to include a control group and a larger sample to validate these findings further.

**RECOMMENDATIONS**

1. It is recommended that teachers conduct initial diagnostic assessments to determine the students' baseline vocabulary level at the start of each quarter. This can help identify those who are struggling and may benefit from early intervention or focused vocabulary reinforcement. Teachers may also consider limiting traditional drill-based approaches and instead exploring interactive strategies that cater to the developmental needs of young students, such as games, visual aids, and integrating verbal context.
2. It is recommended that the Total Physical Response method be incorporated into regular vocabulary instruction, especially for primary-grade students. Teachers may use movement-based activities, such as acting out verbs or demonstrating word meanings through gestures, to make vocabulary learning more engaging and memorable. Schools may also offer in-service training to equip teachers with practical ways to apply TPR techniques that align with DepEd competencies, particularly the standard "Give the meaning of words through clues."
3. Given the strong statistical significance and large effect size of the intervention, it is recommended that TPR be explored for wider implementation in remedial reading, vocabulary enrichment, and tutorial programs. Schools may consider designating regular slots for TPR-based instruction during reading periods or in pull-out support classes. Additionally, future researchers are encouraged to replicate this study across multiple grade levels, subjects, or school contexts to validate the effectiveness of the TPR approach further and expand its applications in early education.

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