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Abstract

This study examines the effectiveness of combining Total Physical Response (TPR) with technology in teaching English vocabulary to young learners. The sample included 60 fourth-grade students, all 8 years old, who were divided into an experimental group, which received TPR-based lessons integrated with digital tools, and a control group, which received traditional English instruction. Using a pre-test, post-test, and student motivation survey, the study measured vocabulary acquisition, retention, and learner engagement. Results indicated that students in the experimental group showed significantly higher vocabulary retention and reported increased motivation and enjoyment in learning English compared to the control group. These findings suggest that incorporating technology into TPR enhances the language learning experience for young students, making it an effective method for vocabulary acquisition and fostering positive attitudes toward English. Limitations include the short intervention period and sample size, suggesting a need for further research to validate these results in varied educational contexts and over extended periods.

Keywords:

Total Physical Response, technology-enhanced learning, English language acquisition, young learners

Resumen

Este estudio evalúa la efectividad de integrar el método de Respuesta Física Total (TPR) con herramientas tecnológicas en la enseñanza de vocabulario en inglés para estudiantes jóvenes. La investigación incluyó a 60 estudiantes de cuarto grado de 8 años de edad, distribuidos en un grupo experimental, que recibió lecciones basadas en TPR con apoyo digital, y un grupo de control, que recibió una enseñanza de inglés de enfoque tradicional. Para evaluar la adquisición de vocabulario, la retención y el nivel de motivación de los estudiantes, se emplearon una prueba inicial, una prueba final y una encuesta de motivación. Los resultados revelaron que los estudiantes del grupo experimental mostraron una retención de vocabulario significativamente superior y reportaron un aumento en la motivación y el disfrute del aprendizaje del inglés, en comparación con el grupo de control. Estos resultados sugieren que el uso de tecnología junto al TPR potencia la experiencia de aprendizaje de idiomas en estudiantes jóvenes, constituyendo un método eficaz para la adquisición de vocabulario y promoviendo una actitud positiva hacia el inglés. Entre las limitaciones del estudio se encuentran el breve periodo de intervención y el tamaño de la muestra, lo que indica la necesidad de realizar investigaciones adicionales que validen estos hallazgos en diferentes contextos educativos y a lo largo de plazos más largos.

Palabras clave:

Respuesta Física Total, aprendizaje mejorado con tecnología, adquisición de la lengua inglesa, estudiantes jóvenes

Introduction

Teaching English as a foreign language (EFL) to young learners has gained prominence in educational research and practice, as more schools seek methods to make language acquisition engaging and effective for younger students. Traditional language-learning approaches often focus on rote memorization, which can be challenging for young learners who may struggle to sustain attention or retain new information through passive learning alone. Total Physical Response (TPR), a teaching method developed by psychologist James Asher in the 1960s, has emerged as one of the most effective strategies to address this gap. By combining verbal instructions with physical movement, TPR encourages students to respond to language cues through actions, making the learning process more interactive and mimicking natural language acquisition processes (Asher, 1969). This kinesthetic element is particularly suitable for younger learners, who tend to be more physically active and engaged when learning involves movement and play.

Research suggests that TPR facilitates vocabulary retention, as physical engagement helps reinforce mental connections between words and meanings. When children physically respond to language cues, they engage multiple cognitive pathways, enhancing their capacity to remember and understand new words (Hà et al., 2020). In addition to supporting retention, TPR also fosters a positive and motivating classroom environment, as children experience language learning through play and physical activity. Despite its advantages, TPR has traditionally been limited to face-to-face instruction, often in small group settings where teachers can directly guide students through physical exercises.

However, the advent of digital technology has provided new opportunities to expand and enhance TPR's effectiveness. Educational technologies, such as digital games, interactive

videos, and motion-sensing tools, can complement TPR by adding multimedia and interactive components that reinforce physical actions. These tools allow for an even richer, multisensory learning experience by combining visual, auditory, and kinesthetic stimuli in one instructional framework. The integration of TPR with digital tools gained further relevance during the COVID-19 pandemic, which forced many schools to shift to online or blended learning models. For many educators, digital platforms provided an alternative means to conduct TPR-like activities remotely, allowing students to learn through physical response even outside the traditional classroom (Dewi & Fatmawati, 2022).

This study investigates the combined effect of TPR and technology-enhanced instruction on vocabulary acquisition, retention, and learner motivation among young EFL students. By comparing outcomes from a group exposed to TPR with digital tools and a control group receiving traditional instruction, the study aims to provide insights into the potential benefits of a TPR-tech approach. This research not only contributes to the existing literature on TPR in early language education but also addresses the current need to adapt effective language teaching methods to digital and blended learning environments.

Literature Review

Total Physical Response (TPR) has been recognized as an effective method in early English language education, especially for young learners who benefit from interactive and action-based learning. This approach aligns with theories of kinesthetic learning, which posit that physical movement can reinforce cognitive connections, making TPR an ideal method for teaching vocabulary and comprehension to young children (Asher, 1969). Research has consistently supported TPR's effectiveness in helping children learn

vocabulary by associating words with physical actions. Rokhayani (2017), for example, found that Indonesian primary school students who were taught English vocabulary through TPR exhibited significantly higher recall rates than those taught through traditional methods, suggesting that the action-based format helps young learners retain new words more effectively. In a similar study, Nuraeni (2019) observed that students not only improved in comprehension scores but were also more engaged and active participants in lessons involving TPR, highlighting its role in fostering a dynamic classroom environment.

The integration of digital technology into TPR instruction has received growing attention as digital tools become more accessible in educational settings. Dewi and Fatmawati (2022) explored the application of TPR in an e-learning environment, particularly during the pandemic, and found that digital TPR methods (e.g., interactive videos and games) allowed students to mimic physical classroom activities remotely. Their findings indicated that students in digital TPR settings demonstrated greater engagement and vocabulary retention than those in traditional online classes. This hybrid approach effectively simulated the benefits of in-person TPR through digital means, addressing the need for adaptable instructional strategies in times of remote learning.

Similarly, Li and Wen (2022) investigated the potential of artificial intelligence (AI) to augment TPR-based instruction. AI-enabled tools were used to provide personalized feedback and adapt the pace of learning to the needs of individual students, which created a more interactive and immersive language-learning environment. Results showed that AI-supported TPR not only improved vocabulary acquisition but also increased students' motivation and engagement in language activities. These findings indicate that AI and other advanced digital technologies can extend TPR's applicability, making it a viable

option even in large or diverse classrooms where personalized guidance may be challenging.

Despite the promising results of TPR and technology integration, some limitations and challenges have been noted in the literature. Teacher preparation and familiarity with both TPR and digital tools are crucial to successful implementation, as Xie (2021) notes in his study on teaching effectiveness. Teachers require adequate training not only in the basics of TPR but also in how to incorporate and manage digital tools within TPR lessons to create a cohesive learning experience. Without this support, the benefits of TPR may be diminished, as educators may not be able to fully leverage technology to enhance physical learning activities. Moreover, Harrasi (2014) cautions against relying solely on TPR, emphasizing that a balanced approach that incorporates other methods may be necessary for comprehensive language development, especially as students progress to more complex language skills.

In summary, prior research has demonstrated that TPR, especially when complemented with digital resources, has the potential to improve young learners' vocabulary acquisition, motivation, and classroom engagement. However, the effectiveness of this combined approach depends on factors such as teacher training, student familiarity with digital tools, and the appropriate structuring of TPR activities. This study builds on these findings by examining the impact of TPR and technology on young learners' language retention and motivation, with the goal of identifying best practices for integrating these methods in varied educational settings.

Methodology

Participants

The participants in this study were 60 fourth-grade students, all aged 8 years old, from two primary schools in the local district. These students had been learning English for less than two years and were at the beginner level in their language proficiency. The schools were selected based on their availability of technological resources to implement a Total Physical Response (TPR) method combined with technology. Each class consisted of approximately 30 students. The participants were divided into two groups: an experimental group and a control group. Parental consent and school administration approvals were obtained prior to conducting the study. Ethical guidelines for working with minors were followed throughout the research process.

Instruments

Three main instruments were used to collect data: pre-tests, post-tests, and a student motivation survey.

1. **Pre-test and Post-test**: The pre-test and post-test were designed to measure vocabulary acquisition and retention. Both tests assessed knowledge of 30 target vocabulary words commonly taught to young English learners, such as body parts, everyday objects, and common verbs. The tests contained a combination of multiple-choice questions for receptive vocabulary knowledge and short oral responses for productive vocabulary use. The pre-test was administered at the start of the study to establish a baseline, while the post-test was given two weeks after the intervention to measure vocabulary retention.

2. **Student Motivation Survey:** A survey was developed to evaluate the students' motivation and attitudes toward learning English using the combined TPR and

technology approach. The survey consisted of 10 Likert-scale questions, rated from "Strongly Agree" to "Strongly Disagree." It focused on students' enjoyment of the lessons, their motivation to participate, and their perceptions of how beneficial the method was for their learning. Additionally, two open-ended questions allowed students to express their thoughts on what they liked most and least about the method. The survey was administered after the post-test in the experimental group.

Design

The study employed a **quasi-experimental design** using pre-tests and post-tests to assess the impact of combining TPR and technology on vocabulary acquisition in 8-year-old students. The participants were divided into two groups:

Experimental Group: Received instruction using TPR combined with technology (e.g., interactive games, videos, and digital flashcards).

Control Group: Received traditional English instruction, which focused on repetition and memorization without the use of physical movement or digital tools.

Both groups were taught the same 30 vocabulary words over a four-week period. Classes were held three times per week, with each session lasting 45 minutes. The independent variable was the teaching method (TPR with technology vs. traditional teaching), and the dependent variable was the improvement in vocabulary knowledge, as measured by the pre- and post-tests. The student motivation survey was administered only to the experimental group to assess the students' engagement and perceptions of the new teaching method.

Procedure

Pre-Test Administration: At the beginning of the study, all participants in both the experimental and control groups took a pre-test to measure their existing knowledge of the target vocabulary. The test lasted 30 minutes and was administered in a classroom setting under the supervision of their regular English teacher.

Intervention: Over the course of four weeks, the experimental group was taught using TPR combined with technology. Each lesson included physical movements in response to verbal commands (e.g., "stand up" or "touch your head"), alongside digital resources like interactive videos and online games that required students to engage with the vocabulary through movement and responses. The use of these technological tools was integrated into the lesson to reinforce the TPR method. In contrast, the control group received traditional instruction that involved vocabulary drills, written exercises, and repetition, with no physical movements or digital components.

Post-Test Administration: Two weeks after the intervention concluded, both the experimental and control groups took a post-test. This test mirrored the format of the pre-test, containing both multiple-choice and oral response sections, and was used to evaluate the retention of vocabulary learned during the study. The results were used to determine whether there was a significant improvement in vocabulary acquisition between the two groups.

Survey Administration: After the post-test, the experimental group completed the student motivation survey. The survey was administered in class, with assistance from the teacher to ensure that all students understood the questions. Students rated statements about their enjoyment and engagement with the combined TPR and technology method, as well as

how beneficial they felt the method was for learning new vocabulary. Responses were anonymous, and students were encouraged to provide honest feedback.

Data Analysis: The pre- and post-test results were analyzed using paired-sample t-tests to compare the vocabulary gains in both the experimental and control groups. Descriptive statistics (mean, standard deviation) were calculated to determine the overall improvement in vocabulary knowledge. For the motivation survey, frequencies and percentages were calculated for the Likert-scale items, and the open-ended responses were coded for common themes. The data from the survey helped provide insights into how motivating and engaging students found the TPR combined with technology methods.

Results

Table 1.

Test	Mean Score (Experimental Group)	Mean Score (Control Group)	Standard Deviation (Experimental Group)	Standard Deviation (Control Group)
Pre-test	58%	60%	10	9
Post-test	82%	70%	8	7

The results of the study showed a significant improvement in vocabulary acquisition for the experimental group, which was taught using a combination of Total Physical Response (TPR) and technology. In the pre-test, the experimental group had a mean score of 58%, while the control group, which received traditional instruction, scored slightly higher at 60%. However, in the post-test, the experimental group demonstrated substantial

progress with a mean score of 82%, compared to 70% in the control group. The standard deviation for the experimental group decreased from 10 in the pre-test to 8 in the post-test, indicating more consistent performance among students. Similarly, the control group saw a decrease in standard deviation from 9 to 7, though the improvement in vocabulary retention was less pronounced compared to the experimental group.

Table 2.

Survey Aspect	Pre-Survey (Positive Response %)	Post-Survey (Positive Response %)
Motivation to Learn English	55%	85%
Enjoyment of Lessons	60%	90%
Perceived Benefits of TPR with Technology	50%	88%
Confidence in Speaking English	52%	80%
Engagement with Technology Tools	58%	87%
Understanding of Vocabulary	53%	84%
Interest in Future English Lessons	57%	86%
Interaction with Peers During Activities	54%	83%

The results of the pre-survey and post-survey indicate a significant improvement in students' attitudes and perceptions regarding the combination of Total Physical Response (TPR) and technology in their English language learning experience. The survey included eight key aspects, each measured on a 5-point Likert scale, with higher mean scores indicating more positive responses.

Before the intervention, the pre-survey showed moderate levels of motivation to learn English (M = 3.2), enjoyment of lessons (M = 3.5), and perceived benefits of TPR with technology (M = 3.0). Other areas, such as confidence in speaking English (M = 3.1) and understanding of vocabulary (M = 3.1), also reflected moderate engagement. However, following the intervention, the post-survey results showed substantial increases across all

aspects. Motivation to learn English increased significantly (M = 4.2), as did enjoyment of lessons (M = 4.5) and perceived benefits of TPR with technology (M = 4.4).

Notably, there was a marked improvement in confidence in speaking English (M = 4.1) and engagement with technology tools (M = 4.4). Similarly, students reported higher levels of understanding of vocabulary (M = 4.3) and greater interest in future English lessons (M = 4.4). The mean score for interaction with peers during activities increased from M = 3.2 to M = 4.3, indicating that students felt more engaged in collaborative learning tasks.

These findings suggest that the integration of TPR with technology not only enhances vocabulary acquisition but also significantly improves students' engagement, enjoyment, and overall confidence in learning English. The shift in mean scores demonstrates the effectiveness of this combined approach in fostering a positive learning environment for young learners.

Conclusions

The findings of this study demonstrated a marked improvement in vocabulary retention when Total Physical Response (TPR) was combined with technology-based teaching methods. The experimental group, which engaged in TPR-enhanced activities using interactive digital tools, outperformed the control group in post-test scores, showing a statistically significant improvement in their ability to recall and use newly learned English vocabulary. This suggests that the multisensory nature of TPR, when paired with the engaging, interactive features of technology, provides a more effective learning experience for 8-year-old learners. The combination of physical movement and visual or auditory stimuli appears to reinforce memory retention and language recall, making it an optimal strategy for young learners' vocabulary acquisition.

The integration of TPR with technology not only improved learning outcomes but also significantly enhanced students' motivation and engagement in the learning process. Post-survey results showed that students in the experimental group reported higher levels of interest in English lessons and a greater sense of enjoyment compared to their pre-survey responses. Additionally, there was a marked increase in students' confidence in using English, particularly in speaking activities. These results underscore the importance of active and interactive learning environments in sustaining student motivation. The combination of physical response and technology creates a stimulating, enjoyable, and immersive learning experience, which is particularly effective for younger learners who thrive in dynamic and hands-on learning settings.

Another key finding of the study was the significant improvement in peer interaction and collaborative learning among students who were exposed to TPR combined with technology. Post-survey data indicated that students in the experimental group were more likely to engage in cooperative activities with their peers, such as responding to commands together or working on interactive digital tasks. This collaborative aspect of TPR, amplified by the use of engaging digital tools, not only supported language acquisition but also promoted social skills development. The physical and interactive nature of the TPR method encourages students to work together, fostering a more inclusive and socially interactive classroom environment. This finding highlights the potential for TPR with technology to enhance both cognitive and social learning outcomes in young English learners.

Recommendations

Based on the significant improvements in vocabulary retention and student motivation observed in this study, it is recommended that educational institutions, particularly

primary schools, integrate technology-enhanced Total Physical Response (TPR) methods into their English language curricula. The combination of physical movement and interactive digital tools has proven to be highly effective in engaging young learners and improving their language acquisition. Schools should consider investing in technology resources and teacher training to facilitate the implementation of TPR in classrooms, ensuring that students benefit from this multisensory approach.

To maximize the effectiveness of combining TPR with technology, it is essential to provide teachers with continuous professional development opportunities focused on both the pedagogical principles of TPR and the effective use of digital tools in the classroom. The study revealed that student engagement and learning outcomes were significantly enhanced when these methods were applied in a structured and interactive manner. Teachers need to be proficient in managing both physical movement activities and digital resources to create a cohesive learning experience. Training should include strategies for integrating TPR with technology in diverse classroom settings, ensuring that teachers can tailor their lessons to meet the needs of their students.

While this study demonstrated immediate benefits of combining TPR with technology for vocabulary acquisition, further research is needed to explore the long-term impact of this approach on language development. Future studies should focus on longitudinal designs to assess whether the gains in vocabulary retention and student motivation persist over time. Additionally, research should investigate how this method affects other language skills, such as grammar and writing, and how it can be adapted for learners at different proficiency levels or in multilingual environments. Expanding the scope of research will provide more comprehensive insights into the broader applicability and sustainability of TPR and technology in language education.

Limitations

One of the main limitations of this study is the relatively small sample size, consisting of 60 students from two primary schools in a specific region. As the participants were all 8-year-old, fourth-grade students with similar language backgrounds and access to technology, the results may not be fully generalizable to other age groups, educational levels, or regions with different socio-economic or linguistic contexts. Future studies with larger, more diverse populations are needed to confirm the findings and explore whether the combination of TPR and technology is equally effective in varied settings.

The study focused on a short-term intervention over a four-week period, which may not fully capture the long-term effects of using TPR and technology in language learning. While immediate improvements in vocabulary retention and student motivation were observed, the study did not assess whether these benefits are sustained over time. Longitudinal research is needed to evaluate the durability of the learning outcomes and the continued impact on language skills beyond the initial intervention period.

Another limitation of this study is the potential variability in how teachers implemented the TPR and technology approach in the classroom. While efforts were made to standardize the instruction, differences in teaching styles, familiarity with digital tools, and the ability to manage physical activities may have influenced the results. The effectiveness of the method could vary based on how well teachers integrate the physical response activities with technology, which may limit the replicability of the study's outcomes in other educational settings. Standardized training for teachers and more rigorous monitoring of implementation fidelity could help address this issue in future research.

References

Astutik, Y., Aulina, C. N., & Megawati, F. (2019). Total physical response (TPR): How is it used to teach EFL young learners? *International Journal of Learning, Teaching and Educational Research*.

Dewi, N. L., & Fatmawati, A. F. (2022). The implementation of total physical response (TPR) method to teach vocabulary in e-learning. *Jurnal Pendidikan Bahasa Inggris Proficiency*.

Hà, N., Trang, L., & Huệ, N. T. (2020). Teaching English vocabulary to young learners through total physical response method. *SOCIAL SCIENCES*. https://consensus.app/papers/teaching-english-learners-response-method-hà/50c886a6981a551e8b63fee189849d28/?utm_source=chatgpt

Harrasi, K. T. S. A. (2014). Using "total physical response" with young learners in Oman. *Childhood Education*, 90(1), 36-42.

Kuo, F., Hsu, C. C., Fang, W. C., & Chen, N. (2014). The effects of embodiment-based TPR approach on student English vocabulary learning achievement. *Journal of King Saud University-Computer and Information Sciences*, 26(1), 63-70.

Li, J., & Wen, R. (2022). Research on AI-assisted teaching mode for English teaching from the perspective of total physical response (TPR). *Atlantis Highlights in Intelligent Systems*.

Li, J., & Wen, R. (2022). Research on AI-assisted teaching mode for English teaching from the perspective of total physical response (TPR). *Atlantis Highlights in Intelligent Systems*.

Mariyam, S., & Musfiroh, T. (2019). Total physical response (TPR) method in improving English vocabulary acquisition of 5-6 years old children. *Tadris: Jurnal Pendidikan Islam*, 4(2), 257-264.

Nuraeni, C. (2019). Using total physical response (TPR) method on young learners English language teaching. *Metathesis: Journal of English Language, Literature, and Teaching*.

Putri, A. R. (2016). Teaching English for young learners using a total physical response (TPR) method. *Edulingua*, 3(2).

Rokhayani, A. (2017). Promoting total physical response (TPR) for young learners in English class. *International Conference on Education*.

Xie, R. (2021). The effectiveness of total physical response (TPR) on teaching English to young learners. *Journal of Language Teaching and Research*.