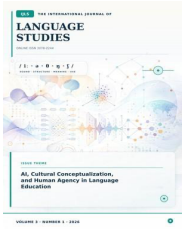
The International Journal of Language Studies
ISSN: 3078-2244 (Online)
2026, Vol. 3, No. 4, pp. 67–91
DOI: https://doi.org/10.60087/ijls.v3.n4.004
Journal homepage: https://ijlangstudies.org



ENHANCING ENGLISH VOCABULARY RETENTION FOR 5-TO-6-YEAR-OLD PRESCHOOLERS THROUGH THE COMBINATION OF TOTAL PHYSICAL RESPONSE AND EDUHOME DIGITAL PLATFORM

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Abstract

Employing a one-group Pre-test and Post-test experimental action research cycle, this study investigated how 48 conveniently selected 5-to-6-year-old preschoolers changed over a 6-week action research cycle built around a 4-week pedagogical treatment. This implementation in Ho Chi Minh City, Vietnam, combined Total Physical Response (TPR) with Eduhome digital platform, using the "Amanda and Friends 3" textbook. Quantitative data from Pre-test and Post-test scores and class observation checklists as well as qualitative data from in-depth teacher interviews were analysed and then synthesized. Results for Research Question 1 suggest that, in the observers' ratings (overall means from M = 4.32 to M = 4.80 on a 5-point scale), the combination of the TPR kinesthetic commands and the audio-visual stimuli from Eduhome effectively addresses the preschoolers' short attention spans, leverages their non-verbal physical responses, lowers their affective filters, and promotes their implicit learning. To address Research Question 2, both statistical analysis of quantitative data and thematic analysis of qualitative data indicate a statistically significant short-term improvement in the preschoolers' oral vocabulary scores in both classes (Leaf 1: M = 6.87 to 8.35, $t(25) = 12.42$, $p < .001$; Leaf 2: M = 6.46 to 7.84, $t(21) = 14.96$, $p < .001$), although the absence of a control group and of a delayed post-test limits causal and long-term claims. Furthermore, the insights gained from this treatment offer a feasible pedagogical model (1) for preschools and foreign language centers to upgrade the quality and sustainability of their English familiarization programs, (2) for early childhood teachers to improve their lesson plans and in-class activities, and (3) for the 5-to-6-year-old preschoolers to enhance considerably their English vocabulary retention.

Keywords *English vocabulary retention*, *preschoolers*, *Total Physical Response* (TPR), *Eduhome digital platform*, *experimental action research cycle*

Article information: Received: 21/10/2026; Accepted: 15/11/2026; Published: 25/12/2026

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1. Introduction

Early exposure to English as a Foreign Language (EFL) has changed from a supplementary educational luxury to a critical pedagogical priority in Ho Chi Minh City (HCMC), Vietnam. Despite this rapid quantitative expansion, optimizing the efficacy of vocabulary retention among older preschoolers (aged 5–6) remains a formidable challenge. Empirical evidence indicates that instructional practices in Vietnam preschools heavily rely on rote memorization, passive choral repetition, and isolated flashcard drilling. This learning environment stands in direct opposition to the developmental psychology of older preschoolers, who inherently possess abundant physical energy, short attention spans, and a vital cognitive reliance on sensory-rich, active engagement. Consequently, traditional pedagogical mismatches might compromise the preschoolers' English vocabulary retention and deteriorate their intrinsic learning motivation.

To address this deficiency, Vietnamese educators have long advocated for Asher's (2012) Total Physical Response (TPR), which coordinates linguistic commands with physical movement to mirror the natural first-language acquisition. TPR effectively satisfies the preschoolers' kinesthetic needs while lowering their affective filter, directly aligning with Krashen's (1982) Input Hypothesis. However, in today's technology-driven education, relying exclusively on physical movement without rich contextual reinforcement might cause instructional monotony. This challenge leads to trying something new as an innovative solution.

Although English centers and preschools in HCMC have cooperated to deploy widely the "Amanda and Friends" series (D. P. Vo & Nguyen, 2022), empirical research evaluating the combined TPR-Eduhome action research cycles using the series as textbooks remains virtually non-existent. Most existing literature treats TPR as an isolated game rather than a core component of a formalized digital curriculum. Employing a one-group Pre-test and Post-test experimental action research cycle to investigate how 48 conveniently selected 5-to-6-year-old preschoolers really changed after the combined TPR-Eduhome 6-week treatment using the "Amanda and Friends 3" textbook in HCMC, this study addressed its two research questions (RQs):

RQ1: What age-related limitations of the 5-to-6-year-old preschoolers does the combined TPR-Eduhome treatment help minimize?

RQ2: To what extent does the combined TPR-Eduhome treatment enhance the preschoolers' English vocabulary retention?

Hopefully, the insights gained from this treatment would provide clear empirical evidence and actionable lesson models for early childhood educators who have been striving to enhance preschoolers' EFL vocabulary retention in various sites in HCMC, and its surrounding areas.

2. Literature Review

2.1. Theoretical Framework

Below are key notions as the study's theoretical framework.

2.1.1. Role of Vocabulary in Early Language Acquisition

As the critical component of language acquisition, vocabulary enables learners to decode, understand, and express meaning effectively (Nation, 2013; Webb & Nation, 2017; Wilkins, 1972). For children aged 5–6, vocabulary acquisition is a multifaceted process that:

Stimulates significantly brain thinking and cognitive development;

Understands the word's form (written and sound forms), its meaning (conceptual nuances), and its use (contextual and grammatical applications);

Is most productive when situated within meaningful interaction, repetition, and multisensory experiences;

Aligns with their immediate environment for any successful selection of vocabulary.

2.1.2. English Vocabulary Retention in Early Childhood

Vocabulary retention is the ultimate goal of language learning, characterized by the transfer of short-term into long-term memory, allowing learners to recall and utilize words spontaneously (Nation, 2013; Webb & Nation, 2017). Preschoolers aged 5–6 do not retain vocabulary through explicit metalinguistic analysis or rote memorization. Asher (1977) posits that retention is solidified through "motor memory traces," where physical actions coordinate with auditory input to encode language directly into the child's neurobiology. Furthermore, viewed through the lens of Mayer's (2009) Cognitive Theory of Multimedia Learning, retention is maximized when abstract linguistic symbols are "dual-coded": they are simultaneously mapped onto vivid audio-visual, and kinesthetic stimuli.

2.1.3. Preschoolers' Learning Characteristics

For preschoolers aged 5–6, language is not processed through abstract or structural rules, but rather through experiential, multisensory, and context-embedded interactions. Understanding these characteristics is critical to addressing age-related limitations hindering the preschoolers' English vocabulary retention. This also helps design effective instructional treatments.

Short Attention Spans: The average attention span of a child in this age group ranges from a five to ten minutes per activity (Scott & Ytreberg, 1990). Young learners' attention is sustained by the immediate perceptual salience and dynamic nature of the task (Wood, 1998). Integrating physical movement into digital learning environments acts as a "physiological reset" (T. K. A. Nguyen, 2025). When children transition between interactive digital tasks and TPR actions, they break the cycle of cognitive fatigue, effectively extending their attention spans and returning to the language task with renewed focus.

Non-verbal Physical Responses: Asher (2012), the architect of TPR, posits that coordination of language with physical actions creates a cognitive blueprint in the child's brain. When children respond to verbal commands with physical movements (such as pointing, jumping, or clapping), they are actively encoding linguistic meaning into their long-term memory without the cognitive load of immediate speech production. This corresponds to what Krashen (1982) terms the "Silent Period," a crucial developmental phase during which young learners internalize the second language through comprehensive input while utilizing non-verbal physical responses to signify comprehension.

Intrinsic Learning Motivation: Preschoolers participate in language activities due to immediate internal rewards, such as curiosity, playfulness, aesthetic pleasure, and the inherent enjoyment of an activity (Deci & Ryan, 2000). Young children do not learn a foreign language because they understand its future utility; they learn it because the immediate classroom activities are fun, meaningful, and emotionally rewarding (Moon, 2000). The teacher's primary task is to cultivate a "here-and-now" motivation by designing games, songs, and stories that tap into children's natural instinct to explore (Harmer, 2007).

Preferred Low Classroom Anxiety: Krashen's (1982) Affective Filter Hypothesis explains why emotional variables such as anxiety, low self-confidence, and defensiveness act as an invisible barrier that prevents input from reaching the language acquisition device in the brain. In a high-anxiety setting, a child's mental energy is consumed by stress management rather than lexical processing, which severely impacts vocabulary retention. MacIntyre (1999) notes that language anxiety impairs both the storage and retrieval of vocabulary. Slattery and Willis (2001) advocate for a supportive, risk-free environment where mistakes are ignored and play is prioritized. Integrating game-based physical activities coupled with digital feedback acts as a "protective buffer" against this anxiety. In Vietnamese EFL contexts, when language production is embedded in physical play, the child's focus shifts from the fear of making linguistic errors to the inherent joy of completing the game, thus keeping the affective filter quite low (T. K. A. Nguyen, 2025).

Reliance on Implicit Learning: Preschoolers rely heavily on implicit learning a subconscious process through which information is internalized naturally and automatically through meaningful exposure and interaction without conscious awareness of what has been learned (Ellis, 2009). Young children learn second language vocabulary implicitly while their conscious minds are entirely focused on solving a puzzle, joining a game, or following a story plot on a screen (Pinter, 2006). Through repetitive, context-rich exposure, lexical items are taken incidentally and stored organically within the brain's neural networks. Explicit instruction is counterproductive at this age; language must be caught, not taught (Larsen-Freeman, 2000).

2.1.4. Total Physical Response

TPR is built upon the coordination of speech and physical action, aiming to teach foreign languages through motor activity. Asher (1977), the founder of TPR, posited that second language (L2) learning should mirror the natural developmental process of first language (L1) acquisition. The TPR instructional sequence progresses through four phases:

Modeling: The teacher issues a clear, direct command in the target language (e.g., "Touch your head" or "Stand up") and simultaneously performs corresponding action;

Scaffolded Practice: The teacher repeats the command and invites learners to perform the action alongside. Learners can physically "try on" the new language while still relying on the teacher's visual scaffolding;

Hesitation (or *Peer Observation*): The teacher only issues the verbal command without performing the action. Learners may pause, look at the teacher for confirmation, or observe their peers before initiating the movement;

Independent and Autonomous Performance: Hesitation gradually diminishes due to purposeful repetition in an immediate environment. Learners turn to respond to the target language commands quickly, accurately, and confidently, without needing to observe the teacher or their peers. This demonstrates that the vocabulary has been successfully integrated into their motor memory.

2.1.5. The Eduhome Digital Platform

Eduhome is defined as a comprehensive, cloud-based educational ecosystem that provides synchronized digital solutions, including interactive digital textbooks, specialized student apps, and classroom management iTools tailored specifically for the national general education curriculum. From a pedagogical perspective, the platform functions on the core principles of Mayer's (2009) Cognitive Theory of Multimedia Learning, which posits that human working memory processes information through two separate channels—auditory and visual—and that learning is significantly enhanced when the two channels are stimulated concurrently without inducing cognitive overload.

The two following pedagogical mechanisms work together to optimize TPR teaching methods for the preschoolers:

High-Fidelity Audio-visual Stimuli: The platform provides high-quality interactive animations, native-speaker pronunciation models, and rhythmically synchronized action songs. These features provide the precise visual and auditory triggers necessary for the teacher during the initial Modeling Stage of the TPR cycle, allowing the preschoolers to map meanings onto target vocabulary instantly without relying on mother-tongue translation.

Interactive Gamification and Kinesthetic Engagement: The platform features touch-screen interactive games and digital flashcards that transform traditional, static vocabulary repetition into movement-based, play-driven communicative tasks. This digital gamification satisfies the preschoolers' biological kinesthetic needs, lowering their affective filter, and maximizing active classroom participation (Duan, 2021; Krashen, 1982).

2.1.6. The "Amanda and Friends" Series

Design by D. P. Vo and Nguyen (2022), the series involves three textbooks the focus of which is "Amanda and Friends 3":

Amanda and Friends 1 (aged 3–4) focuses on building sound perception and confidence through Listening and Speaking. Children learn to recognize and reflexively respond to isolated vocabulary words within familiar themes without the pressure of rote memorization.

Amanda and Friends 2 (aged 4–5) expands the receptive language capacity to approximately 70 words and short phrases (1–3 words). Children begin counting from 1 to 5 and are gently introduced to visual reading.

Amanda and Friends 3 (aged 5–6) serves as a critical transitional bridge before primary education and thus encompasses all the four language skills: Listening, Speaking, Reading,

and Pre-writing. Children are required to accumulate around 100 words, count from 1 to 10, and, crucially, develop the capacity to comprehend consecutive multi-step commands—an essential foundational condition for implementing TPR techniques.

The pedagogical design of this series is underpinned by a "spiral syllabus" framework. Basic lexical items and functional concepts are introduced early and recursively expanded upon in subsequent units, which systematically reinforces memory and prevents cognitive overload.

2.1.7. The Cyclical Nature of Action Research

Action research is a form of collective self-reflective inquiry undertaken by participants in various social situations in order to improve the productivity and justice of their own social or educational practices. In the field of teaching and learning English, particularly in HCMC preschools, action research is a tool for teachers to identify classroom challenges and implement immediate pedagogical treatments.

Operationalized in this study, the action research progresses through a dynamic, self-reflective spiral cycle consisting of four primary phases (Kemmis & McTaggart, 2000):

Planning: The researcher identifies challenges hindering the preschoolers' vocabulary retention, focusing on their above-mentioned five key characteristics.

Acting: The researcher implements the planned treatment, applying the combined TPR-Eduhome cycle (*Modeling*, *Scaffolded Practice*, *Hesitation*, and *Performance*) to teach *Unit 6* of "Amanda and Friends 3".

Observing: While teaching, the researcher gathers data using *Class Observation Checklist* to monitor the preschoolers' engagement and behavioral shifts.

Reflecting: The researcher analyzes the collected data (from tests and observations) to evaluate the effectiveness of this treatment. The reflection informs whether this cycle requires further refinement for future units.

2.1.8. Benefits of this Combined TPR-Eduhome Action Research Cycle

This combined TPR-Eduhome action research cycle using "Amanda and Friends 3" offers four core educational benefits for the preschoolers' English vocabulary retention:

Optimizing Multisensory Synergy and Cognitive Processing: The preschoolers' audio-visual, and kinesthetic channels are activated through high-fidelity native pronunciation models, vivid digital animations from Eduhome, and physical commands from TPR. Coupling abstract linguistic symbols with both digital graphics and bodily movements establishes robust "motor memory traces" in the brain, thereby accelerating translation-free semantic mapping and significantly enhancing vocabulary retention.

Reducing the "*Affective Filter*" *and Performance Anxiety*: This combined TPR-Eduhome action research cycle respects the preschoolers' "Silent Period", allowing them to prove comprehension through physical responses and interactive digital gamification. This non-stressful, play-driven educational environment effectively minimizes performance anxiety, enabling the preschoolers to absorb vocabulary and build language confidence naturally.

Extending Attention Spans through Dynamic Pedagogical Pacing: Generated by transitioning between interactive tasks on Eduhome and physical movement sequences in TPR, the fluid pedagogical pacing serves as a series of positive physiological breaks that help break the preschoolers' cycle of mental fatigue, maintain alertness, and spark intrinsic curiosity. Accordingly, even some reticent or lower-proficiency preschoolers are encouraged to participate more spontaneously.

Facilitating Instant Formative Assessment: The preschoolers' immediate physical responses to the audio-visual Eduhome cues provide the teacher with the visible, behavioral evidence of their comprehension. This directly addresses the pedagogical mismatch of using traditional paper-and-pencil tests in early childhood setups. It also enables the teacher to flexibly adjust instructional pacing and deploy localized scaffolding strategies seamlessly to ensure no child is left behind.

2.2. Related Previous Studies

2.2.1. Studies in the International Context

Below are some key overseas studies confirming the effectiveness of TPR in language acquisition:

Asher (1977) stated that (1) language learning and physical movement together activated the brain's right hemisphere, facilitating durable "memory traces", and that (2) kinesthetic memory significantly reduced the rate of forgetting compared to learning based solely on auditory input.

Dyson's (2012) research on pre-primary language learning in the United Kingdom concluded that (1) preschoolers exposed to TPR-based instruction achieved vocabulary test scores approximately 40% higher than those taught by other methods, and that (2) the integration of listening, physical response, and contextualized input enabled children to acquire vocabulary naturally without any learning pressure.

Conducted in Indonesia with children aged 5–11, Nuraeni's (2019) research proved that TPR was really effective for instructing action verbs and concrete nouns. This author emphasized a critical psychological benefit: TPR serves as a vital pedagogical scaffold that helps children navigate the "Silent Period." By allowing learners to demonstrate their understanding through non-verbal physical responses rather than forced immediate speech, TPR significantly alleviates performance anxiety. This conclusion strongly corroborates second language acquisition (SLA) theories, which assert that receptive comprehension must be firmly established prior to oral production.

Ummah's (2017) qualitative empirical research on TPR implementation in early childhood education in Malang, Indonesia, highlighted a 3-phase pedagogical frame: *pre-teaching*, *whilst-teaching*, and *post-teaching* as well as the significance of TPR in enhancing learners' long-term vocabulary retention, self-confidence and positive attitudes toward foreign language learning critical catalysts for sustaining intrinsic motivation.

Davis's (2024) recent study in Iowa, USA, demonstrated that combining physical movement with such simplified visual input as picture-word associations, which are

commonly found in the "Amanda and Friends" series, reduced cognitive load and significantly enhanced long-term vocabulary retention in young learners. The findings support the integration of multimodal teaching approaches in early language education.

2.2.2. Studies in the Vietnamese Context

Vietnamese researchers have focused on how TPR resolves cultural and psychological barriers in local EFL classrooms.

To Huynh (2018), TPR was an optimal treatment for children who traditionally exhibited shyness and passivity in language classes. Her research indicated that physical movement allowed children to release excess energy and acquire language unconsciously, significantly reducing psychological barriers.

As for memory transfer, T. M. Hoang (2019) regarded action-based games as a critical pedagogical tool for transitioning vocabulary from short-term recognition to long-term memory among Vietnamese preschoolers.

In terms of curriculum design and learning environment, T. B. Vo (2021) stressed the need to create a "language-rich environment." He advocated for combining TPR with such digital platforms as Eduhome to ensure continuous language exposure and robust reinforcement beyond the physical classroom.

T. D. H. Nguyen's (2023) research on 3-5-year-olds empirically validated the impact of TPR on learner engagement: combining highly familiar topics (e.g., body parts) with TPR instructions increased learners' engagement and sustained attention levels to an impressive 90%, a stark contrast to traditional sedentary methods.

Bui and Tran's (2025) research verified the feasible use of TPR command sequences to drastically improve vocabulary recall and accuracy among first-graders.

The ten reviewed studies conclusively demonstrate that TPR is a highly effective, developmentally appropriate way to enhance vocabulary retention, lower affective filters, and maximize classroom participation. They also highlight a lack of empirical research on the integration of TPR into the "Amanda and Friends" series, specifically "Amanda and Friends 3" for preschoolers aged 5–6 in HCMC. Addressing this pedagogical gap is the aim of the current study.

2.3. Research Gaps

Firstly, **lack of research on the combination of TPR and digital platforms**: Most existing studies treat TPR as an isolated physical classroom technique rather than a component of interactive digital ecosystems. Consequently, there is a noticeable scarcity of empirical research on how the simultaneous combination of kinesthetic TPR commands and digital tools (like Eduhome) can optimize vocabulary retention and mitigate young learners' short attention spans.

Secondly, **lack of research on state-approved English language curricula in Vietnam**: The standardization of preschool English education via Circular No. 50/2020/TT-BGDĐT (Ministry of Education and Training [MOET], 2020) has created an urgent need to evaluate the

combined TPR-Eduhome action research cycle as a localized innovative solution, rather than importing overseas programs.

Finally, **lack of empirical research on "Amanda and Friends 3"**: Still unknown is how to maximize their English vocabulary retention when the preschoolers have been exposed to English via the "Amanda and Friends 3" textbook.

3. Methodology

3.1. Research Design

Employing a one-group Pre-test and Post-test experimental action research cycle, this study investigated how 48 conveniently selected 5-to-6-year-old preschoolers in HCMC changed after the combined TPR-Eduhome 6-week treatment, using the "Amanda and Friends 3" textbook. The cycle ran from the third week of April to the end of May 2026: Week 1 for Pre-test, Weeks 2–5 for the pedagogical treatment (8 teaching sessions of 30 minutes in each class), and Week 6 for Post-test and teacher interviews.

The first research question (RQ1) was addressed quantitatively via 24 structured classroom observation checklists (completed across the 8 teaching sessions of each class), using the same Class Observation Checklist to rate the preschoolers' (1) attention spans, (2) physical responses, (3) learning motivation, (4) learning mode, and (5) classroom anxiety. The second research question (RQ2) was first addressed quantitatively via Pre-test and Post-test, collected before and right after the 4-week teaching session. Each test was scored out of 10 points with its own rubric of the same format (Pre-Test Rubric for Speaking and Post-Test Rubric for Speaking). To evaluate the preschoolers' enhanced English vocabulary retention, RQ2 was then supported by Items 17–22 of the same 24 checklists and, qualitatively, by 2 individual teacher interviews using *In-Depth Interview Guide*.

3.2. Participants

Convenience sampling was employed to recruit, with their parents' written permission, 48 preschoolers from two intact Senior Kindergarten classes: Leaf 1 and Leaf 2 respectively with 26 and 22 preschoolers. The research site was a kindergarten in HCMC whose English familiarization program is run, on the basis of parents' voluntary registration, in cooperation with an English language center. Having completed "Amanda and Friends 1" and "Amanda and Friends 2", the preschoolers continued to study "Amanda and Friends 3" during the 2025-2026 academic year.

The study's teacher subjects included the researcher herself and two Vietnamese teachers of English from a preschool affiliated with the center directly managed by the researcher herself. The teachers were selected based on their professional competence and extensive experience in teaching English to preschoolers. Their roles and responsibilities in this study were clearly defined to ensure data reliability and validity. Teacher 1 (T1), with 5 years of preschool teaching experience, taught Leaf 1; Teacher 2 (T2), with 3 years of experience, taught Leaf 2. Before the treatment, the researcher held training sessions with the two teachers to standardize the Pre-test and Post-test procedures and the delivery of the combined TPR-Eduhome treatment.

3.3. Instruments

A triangulated set of instruments specifically calibrated for the preschoolers' cognitive and physical developmental stages.

3.3.1. Pre-test

Scored out of 10 points and administered through 5-minute individual oral interviews (one-on-one with a Vietnamese teacher of English) during Week 1, Pre-test comprised five interactive parts: (1) Greetings and Self-Introduction; (2) Naming Animals; (3) Identifying and Differentiating Animal Speeds; (4) Identifying Numbers, Shapes, and Colors; (5) Describing Pictures and Identifying Characters/Actions. Pre-test was designed from the lexis of *Unit 5. Animals* in the "Amanda and Friends 3" textbook. Such a selection stems from the fact that this is the exact time when the preschoolers have just completed *Unit 5*.

3.3.2. Post-test

Designed to be parallel to Pre-test in terms of structural complexity, evaluative format, and cognitive demands so that the two tests were comparable in form, Post-test also comprised five parts. Part I of Post-test and that of Pre-test were exactly alike. Post-test's Part II to Part V were (2) Naming Food and Drinks, (3) Expressing Food Preferences, (4) Identifying Physiological Demands, and (5) Describing Pictures and Discussing Critically. To avoid memorization while still facilitating a meaningful comparative analysis, Post-test was designed from the lexis of *Unit 6. Food* in the "Amanda and Friends 3" textbook and administered through 5-minute individual oral interviews during Week 6.

3.3.3. Class Observation Checklist

Designed via Google Forms, the checklist comprised 22 structured items evaluated on a 5-point Likert scale (ranging from 1 = *Strongly Disagree* to 5 = *Strongly Agree*). Its three components were aligned with the study's two RQs:

Section A. Preschoolers' Age-Related Limitations (Items 1–16; for RQ1) examined the preschoolers' *short* attention spans (Items 1–3), *non-verbal* physical responses (Items 4–7), *intrinsic* learning motivation (Items 8–10), *implicit* learning (Items 11–12), and Preferred *low* classroom *anxiety* (Items 13–16).

Section B. Preschoolers' English Vocabulary Retention (Items 17–20; for RQ2) measured the efficacy of the combined TPR-Eduhome pedagogical treatment in fostering semantic mapping, contextual recall, and natural pronunciation without mother-tongue translation.

Section C. Feasibility of the Treatment (Items 21–22; for RQ2) evaluated the teachers' confidence to implement the combined TPR-Eduhome Action Research cycle within daily preschool routines.

Each of the two teachers completed 8 checklists (two per week for the whole 4-week teaching session). To account for simultaneous class schedules, the researcher served as a participant-observer, alternating visits to conduct 4 structured observations per class (creating the other 8

checklists). The checklists therefore record the observers' ratings of what they saw in class rather than direct measurements of the preschoolers' behavior. Each digital submission mandated baseline metadata entries (Observer's Name, Date, Class, Student Count, and Lesson Topic) prior to Likert-scale item evaluation.

3.3.4. In-depth Interview Guide

The last instrument—*In-Depth Interview Guide*—was used to reconfirm the two teachers' pedagogical perceptions regarding (1) the preschoolers' age-related limitations, and (2) the extent to which the treatment enhanced their English vocabulary retention at the research site. The 12 questions were categorized into 7 core pedagogical themes:

Attention Spans: Exploring (i) factors shortening attention spans and (ii) real-life examples where the treatment helped the distracted preschoolers quickly re-engage with the lesson.

Physical Response: Examining indicators demonstrating that they grasp word meanings through the combination of Eduhome visual stimuli and TPR physical responses.

Learning Motivation: Assessing intrinsic motivation indicators and how the treatment stimulated the preschoolers to participate voluntarily without their teacher's prompts or pressure.

Learning Mode: Investigating their natural vocabulary retention through play-based activities during the treatment.

Classroom Anxiety: Identifying triggers of classroom anxiety and examining how the treatment lowered the affective filter, enabling the reticent or shy preschoolers to engage without fear of making mistakes.

English Vocabulary Retention: Comparing the improvements in their vocabulary retention with the situation prior to the treatment.

Feasibility of the combined TPR-Eduhome Treatment: Evaluating the feasibility of the treatment into daily teaching routines.

3.4. Data Collection

The quantitative data was collected through the three steps:

Administering Pre-test individually to 48 preschoolers to record their performance on the previously taught Unit 5 (Week 1).

Rating numerically the preschoolers' behaviors across 8 teaching sessions, utilizing *Class Observation Checklist*, to build a robust quantitative dataset (Weeks 2–5).

Administering Post-test individually to 48 preschoolers to quantify their short-term improvements in English vocabulary retention (Week 6).

The qualitative data was collected through the two steps:

Providing *In-Depth Interview Guide* to the teachers prior to the interview sessions (Week 5).

Scheduling and audio-recording the two face-to-face individual interviews at the research site, using the researcher's mobile phone. The interviews were administered in the two teachers' native language, i.e., Vietnamese, to ensure their expressive comfort and clarity. The excerpts quoted in this article were translated into English by the researcher. Despite the focus on the 7 core themes, more open-ended questions were flexibly added, depending on the interviewees' responses, thereby delving deeper into the research content and ensuring the accuracy and practical validity of the study's results (Week 6).

3.5. Data Analysis

To ensure a rigorous and comprehensive evaluation of the data, a mixed-methods data analysis framework (Creswell & Creswell, 2018) was employed, integrating both statistical computation and thematic interpretation. The quantitative dataset, comprising test scores and class observation checklist frequencies, was processed using the Statistical Package for the Social Sciences (SPSS version 26.0):

Inferential Statistics for *Tests*: A paired-samples t-test was conducted to compare the Pre-test and Post-test scores. This statistical test examined whether Post-test scores (Unit 6, after the treatment) were significantly higher than Pre-test scores (Unit 5, before the treatment) at $p < .05$.

Descriptive Statistics for *Class Observation Checklists*: Ratings collected from 24 structured observation checklists on a 5-point Likert scale were converted into descriptive metrics, specifically Mean scores (M) and Standard Deviations (SD). These metrics reflected longitudinal behavioral trends and the degree of manifestation regarding preschoolers' age-related limitations.

Derived from teacher interviews, the qualitative data underwent the 6-phase of *Thematic Analysis* established by Braun and Clarke (2006):

Familiarization: Transcribing the audio-recorded face-to-face interviews and thoroughly reading the transcripts to immerse in the data;

Generating initial codes: Coding these transcripts, particularly the contextual explanations linked to the initial ticking prompts during the interviews;

Searching for themes: Grouping codes into broader pedagogical categories aligned with 7 interview themes;

Reviewing themes: Refining the candidate themes against the coded extracts and the entire dataset;

Defining and naming themes: Defining core qualitative concepts, e.g., "Digital scaffolding";

Producing the report: Synthesizing the extracts into rich narrative accounts to explain how the treatment successfully addressed preschoolers' age-related limitations.

3.6. Data Triangulation

To maximize the validity and depth of the study, data triangulation was done by merging the quantitative statistical findings (from Pre-test, Post-test, and checklists) with the qualitative themes (from interviews). This synthesis allowed the teachers' in-depth narratives to cross-validate, explain, and contextualize the quantitative growth patterns, offering a holistic response to the RQs (Creswell & Creswell, 2018).

3.7. Ethical Considerations

Before the 6-week action research cycle began, written approval was obtained from the principal of the kindergarten in April 2026. Consent forms explaining the study's purpose, procedures, and voluntary nature were distributed to and signed by the parents or legal guardians of all participating preschoolers, who were informed that participation was not obligatory and that they could withdraw at any point. To protect privacy, the preschoolers were assigned alphanumeric codes (e.g., Student 01), and the two teachers were anonymized in data tabulation, transcripts, and reporting.

4. Results and Discussion

4.1. Reliability of the Observed Data and their Quantitative Metrics

To evaluate the internal consistency of the 22-item *Class Observation Checklist*, reliability analysis was conducted using SPSS version 26.0. The Cronbach's Alpha coefficient which yields a value of .653 across the 22 fixed items and which is above the minimum level of .60 but below the conventional .70, indicates a moderate level of internal consistency that is acceptable for exploratory research in social sciences (T. Hoang & Chu, 2008). To interpret the quantitative metrics, mean scores (M) were categorized into standard evaluation bands: *Disagree* = M < 2.60; *Neutral/ Moderately Agree* = 2.60 <=M < 3.40; *Agree* = 3.40 <= M < 4.20; and *Strongly Agree* = 4.20 <= M<=5.00.

4.2. Distribution of Classroom Observers

Such a distribution across the two experimental classes ensured a balanced dataset for evaluating the treatment.

Table 1. *Distribution of Classroom Observers*

Crosstabulation		**Class**		**Total**
		Leaf 1	**Leaf 2**	
Observer Code	Observer 1	8	0	8
	Observer 2	0	8	8
	Observer 3	4	4	8
Total		**12**	**12**	**24**

4.3. Results for RQ1: Minimizing Preschoolers' Age-Related Limitations

The reduced limitations were proved via Items 1–16 (coded as Q1–Q16 in *Class Observation Checklist*).

4.3.1. Short Attention Spans (Items 1–3)

Q3 ranked the first with the highest mean score of M = 4.46. That the results of all 24 observations were only "Agree" (54.2%; 13 out of 24 observations) or "Strongly Agree" (45.8%; 11 out of 24 observations) proved that the combined TPR-Eduhome treatment effectively reduced the preschoolers' boredom and fatigue while extending their attention spans.

Q2 ranked the second with the mean score of M = 4.38. That the results of all 24 observations were only "Agree" (62.5%; 15 out of 24 observations) or "Strongly Agree" (37.5%; 9 out of 24 observations) confirmed that alternating continuously between TPR movements and the Eduhome screen maintained the preschoolers' continuous attention, thus reducing distraction.

Q1 ranked the third with the mean score of M = 4.13. That 95.9% of the total 24 observations chose either "Agree" (79.2%; 19 out of 24 observations) or "Strongly Agree" (16.7%; 4 out of 24 observations), while only 4.2% (1 out of 24 observations) remained neutral, confirmed that although the preschoolers quickly got bored and find it difficult to sit still, they felt curious, eager, and engaged in the lesson when teachers combined TPR and the Eduhome screen.

The overall mean score of M = 4.32 confirmed that alternating between digital stimuli and kinesthetic movement effectively addressed the preschoolers' short attention spans and sustained their engagement.

Qualitative Triangulation for Subsection 4.3.1

"*Children easily get bored and find it difficult to sit still for long. When I combine Eduhome songs and TPR hand gestures, e.g., cupping my hands to mimic a sandwich, it recaptures their focus*." [Teacher 1, abbreviated to T1]

"*Vocabulary segments caused the learners' distraction, but integrating background music and bodily actions averted disengagement*." [Teacher 2, abbreviated to T2]

Results from Subsection 4.3.1

The combined TPR-Eduhome treatment successfully mitigates the preschoolers' short attention spans. The continuous alternation between digital touch-screen visuals and kinesthetic physical movements breaks the cycle of fatigue and sustains student engagement. This matches Cameron's (2001) pedagogical assertion that vocabulary instruction for young learners requires a rapid succession of varied, visually stimulating, and interactive tasks to counteract cognitive fatigue.

4.3.2. Non-Verbal Physical Responses (Items 4–7)

Q4 ranked the first with the highest mean score of M = 4.88. That the results of all 24 observations only were "Agree" (12.5%; 3 out of 24 observations) or "Strongly Agree" (87.5%; 21 out of 24 observations) proved that the interactive features on Eduhome provided audio-visual support for TPR activities.

Q5 and Q6 ranked the second with the same mean score of M = 4.58. That the results of all 24 observations were only "Agree" (41.7%; 10 out of 24 observations) or "Strongly Agree" (58.3%; 14 out of 24 observations) for both items confirmed that the preschoolers (1) responded confidently to their teacher's instructions when exposed to Eduhome images and sounds, and (2) grasped successfully word meanings through non-verbal physical responses before achieving oral pronunciation.

Q7 ranked the third with the mean score of M = 4.46. That the results of all 24 observations were only "Agree" (54.2%; 13 out of 24 observations) or "Strongly Agree" (45.8%; 11 out of 24 observations) confirmed that the preschoolers' TPR physical responses served as reliable indicators of their vocabulary comprehension abilities.

The overall mean score of M = 4.63 confirmed that non-verbal physical responses served as reliable indicators of the preschoolers' comprehension.

Qualitative Triangulation for Subsection 4.3.2

"*When I teach* 'hungry' *and* 'thirsty', *I use Eduhome for clear illustrations. Then I touch my throat for* 'thirsty' *or my stomach for* 'hungry'. *Children can easily deduce the meaning without translation*." [T1]

"*Children naturally demonstrate comprehension through physical reflexes before speaking*." [T2]

Results from Subsection 4.3.2

Non-verbal physical responses act as a vital cognitive bridge for the preschoolers. By mapping verbal instructions onto bodily actions, the preschoolers successfully decode and demonstrate receptive vocabulary comprehension prior to producing oral speech. This validates Asher's (2012) theoretical framework and Krashen's (1982) concept of the "Silent Period," during which young learners internalize target languages through kinetic output prior to verbal expression.

4.3.3. Intrinsic Learning Motivation (Items 8–10)

Q9 ranked the first with the highest mean score of M = 4.71. That the results of all 24 observations were "Agree" (29.2%; 7 out of 24 observations) or "Strongly Agree" (70.8%; 17 out of 24 observations) reflected the preschoolers' enthusiastically raising their hands and actively participating in class activities.

Q8 ranked the second with the mean score of M = 4.67. That the results of all 24 observations were only "Agree" (33.3%; 8 out of 24 observations) or "Strongly Agree" (66.7%; 16 out of 24 observations) confirmed that the treatment really stimulated the preschoolers' learning motivation.

Q10 ranked the third with the mean score of M = 4.63. That the results of all 24 observations were only "Agree" (37.5%; 9 out of 24 observations) or "Strongly Agree" (62.5%; 15 out of 24 observations) confirmed that the treatment encouraged the preschoolers' voluntary participation.

The overall mean score of M = 4.67 confirmed the impact of the treatment on the preschoolers' learning motivation.

Qualitative Triangulation for Subsection 4.3.3

"*Since Eduhome has vivid images, song videos, and stories, combined with TPR, it strongly stimulates children's curiosity, making even shy students raise their hands and volunteer to interact with the touch screen*." [T2]

"*Competitive game elements and immediate physical involvement encourage their voluntary participation without external coercion*." [T1]

Results from Subsection 4.3.3

The combined TPR-Eduhome treatment stimulates the preschoolers' intrinsic motivation for learning, prompting them to participate voluntarily and enthusiastically without external pressure. This supports Deci and Ryan's (2000) Self-Determination Theory.

4.3.4. Implicit Learning Mode (Items 11–12)

Q11 ranked the first with the highest mean score of M = 4.92. That the results of all 24 observations were only "Agree" (8.3%; 2 out of 24 observations) or "Strongly Agree" (91.7%; 22 out of 24 observations) confirmed that play-based acquisition successfully replaced rote memorization.

Q12 ranked the second with the mean score of M = 4.67. That the results of all 24 observations were only "Agree" (33.3%; 8 out of 24 observations) or "Strongly Agree" (66.7%; 16 out of 24 observations) validated that the preschoolers automatically understood stories and followed character actions through visual aids and gestures without translation.

The overall mean score of M = 4.80 indicated the strong role of implicit learning mode.

Qualitative Triangulation for Subsection 4.3.4

"*Children learn English through many ways and remember it naturally instead of rote memorization. For example, when I teach sentence patterns in Unit 6 like* 'Do you like cake?', *I use songs, and the children naturally respond with* 'Yes, I do'." [T1]

"*Repeated audio-visual exposure through stories and songs builds their automatic linguistic reflexes*." [T2]

Results from Subsection 4.3.4

Language is acquired implicitly. Storytelling, music, and digital play enable children to internalize vocabulary naturally without conscious grammar analysis or rote memorization. This aligns with Ellis's (2009) theory of implicit learning.

4.3.5. Preferred Low In-Class Anxiety (Items 13–16)

Q14 ranked the first with the highest mean score of M = 4.83. That the results of all 24 observations were only "Agree" (16.7%; 4 out of 24 observations) or "Strongly Agree" (83.3%; 20 out of 24 observations) demonstrated that the treatment significantly boosted the preschoolers' confidence and minimized their anxiety regarding making mistakes.

Q15 ranked the second with the mean score of M = 4.79. That the results of all 24 observations were only "Agree" (20.8%; 5 out of 24 observations) or "Strongly Agree" (79.2%; 19 out of 24

observations) confirmed that shy or reticent preschoolers actively participated in interactive group activities like singing and storytelling.

Q13 ranked the third with the mean score of M = 4.71. That the results of all 24 observations were only "Agree" (29.2%; 7 out of 24 observations) or "Strongly Agree" (70.8%; 17 out of 24 observations) confirmed that the treatment effectively reduced reticent or shy children's anxiety by creating a safe, stress-free, and game-like learning environment.

Q16 ranked the fourth with the mean score of M = 4.54. That the results of all 24 observations were only "Agree" (45.8%; 11 out of 24 observations) or "Strongly Agree" (54.2%; 13 out of 24 observations) validated that shy or reticent preschoolers showed changes: more joyful, enthusiastic, and confident in answering vocabulary review questions.

The overall mean score of M = 4.72 pointed to the positive impact of the treatment in maintaining a low-anxiety climate.

Qualitative Triangulation for Subsection 4.3.5

"*Participating in Eduhome reduces anxiety because the software has built-in game loops. If children make a wrong selection, they are allowed to retry. When they get it right, the software reads the correct word aloud, making them more confident and lowering their anxiety*." [T2]

"*Combining this with supportive teacher modeling helps reticent learners engage without fear of failure*." [T1]

Results from Subsection 4.3.5

The combined TPR-Eduhome treatment lowers affective filters and minimizes anxiety. In a safe, gamified and no-penalty environment, reticent and shy preschoolers gain the confidence needed to engage actively in language learning. This aligns with Krashen's (1982) Affective Filter Hypothesis.

4.3.6. Discussion of Results for RQ1

The observation data suggest that the combined TPR-Eduhome treatment helped minimize the age-related limitations of the 5-to-6-year-old preschoolers, especially short attention spans and high classroom anxiety. The quantitative observation data showed high ratings across all the five evaluated dimensions (their overall mean scores ranging from M = 4.32 to M = 4.80): *Implicit Learning Mode* achieved the highest efficacy (M = 4.80), followed closely by *Preferred Low In-Class Anxiety* (M = 4.72) and *Intrinsic Learning Motivation* (M = 4.67), while *Non-Verbal Physical Responses* (M = 4.63) and *Short Attention Spans* (M = 4.32) collectively confirmed the mitigation of these limitations.

These results are consistent with Asher's (2012) "Trace Theory of Memory" and Mayer's (2009) "Cognitive Theory of Multimedia Learning". Also, the treatment clearly overcame a notable drawback: TPR struggles to convey abstract concepts or closely related terms through body language alone (Tran, 2022); however, the integration of Eduhome's vivid visual storytelling seamlessly relieved this struggle by establishing immediate contextual encoding before any physical movement. Finally, by fostering a gamified, low-anxiety environment, the treatment really lowered the preschoolers' "Affective Filters" in accordance with Krashen's

(1982) hypothesis, empowering them to transition smoothly from the "Silent Period" to active verbal production.

To provide a comprehensive overview of how the combined TPR-Eduhome treatment positively influenced the preschoolers' age-related limitations (addressing RQ1), the overall mean scores (M) of the five observed dimensions are summarized and compared collectively in Figure 1.

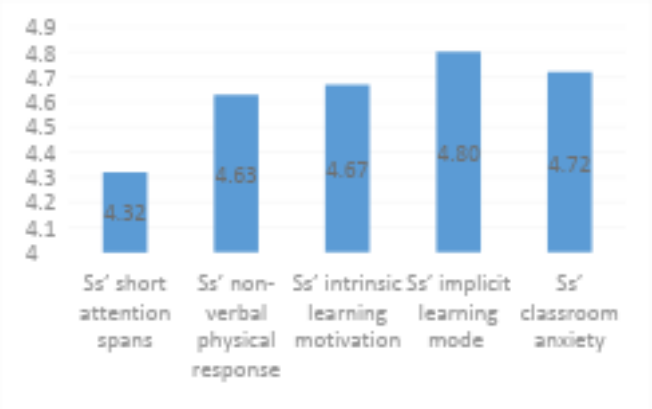


Figure 1. *Overall Mean Scores of Five Age-Related Limitations*

4.4. Results for RQ2: Enhancing Preschoolers' English Vocabulary Retention

4.4.1. English Vocabulary Retention (Items 17–20)

Q20 ranked the first with the highest mean score of M = 4.71. That the results of all 24 observations were only "Agree" (29.2%; 7 out of 24 observations) or "Strongly Agree" (70.8%; 17 out of 24 observations) confirmed that the preschoolers remembered lyrics and rhythmically moved their limbs along with English songs played on Eduhome.

Q18 ranked the second with the mean score of M = 4.67. That the results of all 24 observations were only "Agree" (33.3%; 8 out of 24 observations) or "Strongly Agree" (66.7%; 16 out of 24 observations) indicated that contextual learning successfully replaces rote memorization.

Q19 ranked the third with the mean score of M = 4.63. That the results of all 24 observations were only "Agree" (37.5%; 9 out of 24 observations) or "Strongly Agree" (62.5%; 15 out of 24 observations) confirmed that the preschoolers pronounced English words naturally while watching teacher's mimetic actions.

Q17 ranked the fourth with the mean score of M = 4.46. That the results of all 24 observations were only "Agree" (54.2%; 13 out of 24 observations) or "Strongly Agree" (45.8%; 11 out of 24 observations) demonstrated that visual storytelling activities on Eduhome helped students understand and remember English words without Vietnamese translation.

The overall mean score of M = 4.62 confirmed the preschoolers' remarkable enhanced vocabulary retention.

4.4.2. Feasibility of the Combined TPR-Eduhome Treatment (Items 21–22)

Q21 ranked the first with the maximal mean score of M = 5.00. The results of all 24 observations were only "Strongly Agree" (100%; 24 out of 24 observations), causing a standard

deviation of .000. This reflected universal consensus among observers that incorporating the combined TPR-Eduhome treatment into daily lessons was highly feasible.

Q22 ranked the second with the mean score of M = 4.96. That the results of all 24 observations were only "Agree" (4.2%; 1 out of 24 observations) or "Strongly Agree" (95.8%; 23 out of 24 observations) resulted in the outstanding overall mean score of M = 4.98.

Qualitative Triangulation for Subsection 4.4.2

"*The treatment has practical applicability thanks to the fact that the topics revolve around children's daily lives. Since Eduhome already provides pre-loaded topics, videos, and songs, it saves teachers preparation time at home while effectively enhancing vocabulary retention*." [T1]

"*The preschoolers' progress* is evident in the shift *from one-word responses to complete sentences*: '*I like to eat sandwiches*' *instead of just* '*sandwiches*'." [T2]

Results from Subsection 4.4.2

The above-mentioned results confirm that the combined TPR-Eduhome treatment effectively enhances contextual vocabulary retention. It is practical, feasible, and sustainable for teachers to implement in daily classroom routines.

4.4.3. Inferential Statistics: Paired Samples T-Test

To evaluate vocabulary retention gains quantitatively, a paired-samples t-test was conducted on SPSS version 26.0 to compare Pretest scores against Posttest scores across the two experimental classes: Leaf 1 (N = 26) and Leaf 2 (N = 22).

Table 2. *Paired Samples Statistics*

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test 1	6.865	26	.9006	.1766
	Post-test 1	8.346	26	1.0561	.2071
Pair 2	Pre-test 2	6.455	22	1.0108	.2155
	Post-test 2	7.841	22	1.0844	.2312

Table 3. *Paired Samples Correlations*

		N	Correlation	Sig.
Pair 1	Pre-test 1 and Post-test 1	26	.818	.000
Pair 2	Pre-test 2 and Post-test 2	22	.916	.000

Table 4. *Paired Samples Test*

		Mean Difference	Std. Deviation	95% CI of the Difference	t (df), p
Pair 1	Post-test 1 – Pre-test 1	1.4808	.6080	[1.2352, 1.7263]	t(25) = 12.419, p < .001
Pair 2	Post-test 2 – Pre-test 2	1.3864	.4346	[1.1937, 1.5790]	t(21) = 14.963, p < .001

Leaf 1 Analysis: As shown in Table 2, the mean score of students in *Leaf 1* increased from a Pretest baseline of M = 6.865 (SD = .9006) to a Posttest mean of M = 8.346 (SD = 1.0561). Table 3 indicates a strong positive correlation (r = .818, p < .001) between the two testing periods. As reported in Table 4, the paired-samples t-test yielded a t-value of -12.419 (df = 25) with a significance value of p < .001. This indicates a statistically significant difference between the Pretest and Posttest scores, with a mean improvement of 1.48 points (95% CI [1.24, 1.73]; Cohen's dz = 2.44).

Leaf 2 Analysis: Similarly, the mean score for *Leaf 2* rose from a Pretest baseline of M = 6.455 (SD = 1.0108) to a Posttest mean of M = 7.841 (SD = 1.0844) as shown in Table 2. Table 3 demonstrates a very strong correlation (r = .916, p < .001) across the evaluation intervals. The paired-samples test results in Table 4 show a t-value of -14.963 (df = 21) with a significance value of p < .001. The mean difference of 1.39 points (95% CI [1.19, 1.58]; Cohen's dz = 3.19) indicates a statistically significant improvement in the preschoolers' scores after the treatment.

Results from Subsection 4.4.3: The paired-samples t-test results show statistically significant gains from Pre-test to Post-test in both classes. Because the two tests cover different units and there was no control group, these gains are consistent with, but do not by themselves prove, a positive effect of the combined TPR-Eduhome treatment.

4.4.4. Discussion of Results for RQ2

The study's main quantitative result is the improvement in the preschoolers' oral vocabulary scores. The overall mean score from classroom observations reached M = 4.62, driven by the preschoolers' ability to remember lyrics and rhythmically move along (M = 4.71) as well as learn through context (M = 4.67) rather than rote memorization. Also, inferential statistics from the paired-samples t-test provided evidence of improvement: in Leaf 1 (N = 26), the mean scores rose from a pre-test baseline of M = 6.865 to a post-test mean of M = 8.346 (t = -12.419, p < .001), a gain of 1.48 points; similarly, in Leaf 2 (N = 22), the mean scores rose from M = 6.455 to M = 7.841 (t = -14.963, p < .001), yielding a significant improvement of 1.39 points. The post-test aggregate of over 8.0 out of 10 contrasted with the pre-test mean of approximately 6.68, suggesting a positive effect of the treatment.

As for its advantages, the treatment overcame a major drawback of traditional physical approaches. It is difficult to teach abstract notions or distinguish the meanings of *father* from

mother, *brother* and *sister*, or *car* from *bus*, if relying solely on TPR (Tran, 2022). The study's vibrant visual storytelling in Eduhome (M = 4.46) helped reduce such ambiguity. The digital platform provided visuals while TPR consolidated memory. This dual approach aligns seamlessly with the theories of Mayer (2009) and Asher (2012).

Despite such remarkable strengths, the study faced certain challenges. The treatment relied heavily on technological infrastructure (touch screens and multimedia projectors) and required careful lesson preparation by the teachers to synchronize digital prompts with physical movements smoothly. Controlling these challenges would make it entirely possible to demonstrate the feasibility of the combined TPR-Eduhome treatment (M = 4.98) and its superior, sustainable value in early childhood English education.

5. Conclusion

This section summarizes (1) the study's findings and contributions, theoretical and practical; (2) its pedagogical implications, and (3) some recommendations for further research.

5.1. Findings and Contributions

The study's results support the efficacy of the combined TPR-Eduhome treatment in minimizing the preschoolers' age-related limitations, especially short attention spans and high in-class anxiety, while leveraging their non-verbal physical response and implicit learning mode. Inferential statistics and triangulation also indicated a short-term enhancement in the preschoolers' English vocabulary retention and the feasibility of the combined TPR-Eduhome treatment.

What has been found from this study contributed something to preschool foreign language teaching in HCMC. Theoretically, it reinforced the robust synergy between Asher's (2012) "Trace Theory of Memory", Mayer's (2009) "Cognitive Theory of Multimedia Learning", and Krashen's (1982) "Affective Filter Hypothesis" in early childhood EFL vocabulary teaching and learning. Practically, it overcame the traditional drawbacks of physical approaches alone by providing high-fidelity digital visual contexts prior to kinesthetic responses. Finally, it highlighted the feasibility of operationalizing *English Familiarization Curriculum for Preschool Children* (Circular No. 50/2020/TT-BGDĐT; MOET, 2020) into a standardized, play-driven, and age-appropriate framework.

5.2. Pedagogical Implications

Preschool teachers can take advantage of the above-mentioned findings to self-equip their classrooms with the combined TPR-Eduhome action research cycles to maximize their young learners' vocabulary retention through play-based and kinesthetic activities. Specifically, teachers can design a dynamic pedagogical pacing environment to lower the learners' affective filters and simultaneously extend their attention spans. In addition, education managers can leverage this series of cycles across successive academic years to standardize their preschool English programs, shifting from voluntary extracurricular demands to a synchronized national framework.

5.3. Limitations

This study has several limitations.

Concerning Research Conditions

On the one hand, the study was carried out in a relatively short action research cycle; consequently, no absolute conclusions about long-term memory consolidation could be drawn. On the other hand, a potential "novelty effect" might have slightly inflated the initial engagement metrics due to the children's first exposure to Eduhome's interactive touch-screen features.

Concerning Research Sampling

The study was confined to a convenient sample of 48 preschoolers aged 5–6 at only one kindergarten in HCMC. Therefore, this localized scope limits the immediate statistical generalizability of the findings to broader regional or national demographics.

Concerning Research Design

The one-group design had no control group, so the gains cannot be attributed to the treatment alone, nor can the separate contributions of TPR and Eduhome be isolated. In addition, Pre-test and Post-test were built on different units (Unit 5 and Unit 6) and, despite their parallel format, were not shown to be of equal difficulty. Post-test was administered immediately after the treatment and no delayed post-test was given, so the results reflect short-term rather than long-term retention.

Concerning Observation and Interview Data

The 22-item checklist reached only moderate internal consistency (Cronbach's Alpha = .653) and was completed by the two teachers who delivered the treatment and by the researcher, who also manages the center running the program. The checklist ratings and the two teachers' interview responses may therefore have been influenced by the observers' expectations.

Concerning Research Infrastructure-based Instruments

The combined model heavily relies on stable digital classroom infrastructure (smart TVs, audio systems, etc.). Also, it requires meticulous teacher preparation to synchronize digital audio-visual prompts with physical movements smoothly.

5.4. Recommendations for Further Research

Firstly, research should be conducted across multiple iterative cycles with ample time to validate the durability of long-term vocabulary retention. Secondly, research should not be confined to the 5-to-6-year-old cohort but should expand simultaneously across all three preschool levels (*Seed*, *Bud*, and *Leaf*) to discover universal psycholinguistic patterns and/or age-specific differences. Finally, research should incorporate pre-tests, post-tests, and delayed post-tests to make the memory retention results more reliable.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflicts of Interest

The first author is the academic manager of the English language center that delivers the English familiarization program at the research site. The authors declare no other conflict of interest.

Author Contributions

Le Thi Van Quy: conceptualization, methodology, investigation, formal analysis, writing – original draft. To Minh Thanh: supervision, writing – review and editing. Both authors approved the submitted version.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics Statement

The study was approved by the principal of the participating kindergarten. Written informed consent was obtained from the parents or legal guardians of all participating preschoolers; participation was voluntary, and all data were anonymized.

Declaration of Generative AI and AI-Assisted Technologies

Generative AI (Google Gemini) was used in the master's project on which this article is based to assist in synthesizing and visualizing the conceptual framework and refining academic phrasing. All data collection, statistical analyses, and interpretations were conducted and verified by the authors, who reviewed all AI-assisted content and take full responsibility for the article.

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