Learning Through Movement: Kinesthetic Strategies for Vocabulary Acquisition and Retention in Primary and Secondary ESL and EFL Classrooms - A Systematic Review

Aimi Khairiyah Hamdan, Azlina Abdul Aziz

Faculty of Education, Universiti Kebangsaan Malaysia, Bangi 43600, Malaysia

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ABSTRACT

Vocabulary knowledge plays a crucial role in ESL and EFL learners' language development; however, vocabulary retention remains a persistent challenge, particularly among primary and secondary school learners in conventional classroom settings. In response to this issue, kinesthetic or movement-based learning strategies have been increasingly explored as an alternative approach to vocabulary instruction. This study presents a systematic literature review of 15 empirical studies published between 2016 and 2024 that examined the effects of kinesthetic learning strategies on vocabulary acquisition and retention among ESL and EFL learners. Guided by PRISMA procedures, the review included peer-reviewed experimental and quasi-experimental studies involving primary and secondary learners, with vocabulary outcomes measured through pre- and post-intervention assessments. The reviewed studies employed strategies such as Total Physical Response, gesture-based learning, movement games, drama-based activities, and selected technology-assisted approaches. Overall, the findings indicate that kinesthetic strategies are associated with improved short-term vocabulary acquisition and, in several studies, enhanced vocabulary retention over time, particularly among young and lower-proficiency learners. In addition, many studies reported increased learner engagement and motivation during vocabulary instruction. This review highlights the potential of kinesthetic learning as an effective pedagogical approach for vocabulary development and provides evidence-based insights for educators seeking to incorporate movement-based strategies into ESL and EFL classrooms.

Keywords: kinesthetic learning, vocabulary acquisition and retention, Total Physical Response (TPR), ESL, EFL

INTRODUCTION

Vocabulary plays a central role in English language learning as it underpins learners' ability to listen, speak, read, and write effectively. For ESL and EFL learners, acquiring sufficient vocabulary is essential to comprehend spoken and written texts and to express ideas accurately. Learners with limited vocabulary knowledge often experience difficulties in overall language use, which may hinder their academic progress. As noted by Nation (2022), vocabulary mastery is a key component of overall language proficiency. Despite its importance, vocabulary acquisition and retention remain a persistent challenge for many young learners, particularly in formal classroom contexts (Alqahtani, 2019).

In many ESL and EFL classrooms, traditional vocabulary teaching practices such as memorisation, dictionary use, and direct translation continue to be widely applied. These approaches can be useful for certain learning purposes, such as introducing word meanings or supporting independent learning. However, previous research has suggested that when used in isolation, such methods may not sufficiently support deep processing or long-term retention, especially for learners who benefit from more active and experiential learning opportunities (Webb & Nation, 2017). As a result, educators have increasingly explored alternative instructional approaches that promote learner engagement and meaningful vocabulary learning.

One such approach is kinesthetic or movement-based learning, which incorporates physical activities such as gestures, body movements, drama, and games into language instruction. These strategies are grounded in

embodied cognition theory, which posits that learning is enhanced when cognitive processes are supported by physical action and sensory experience. Kinesthetic learning has been applied in various forms, including Total Physical Response (TPR), gesture-supported instruction, collaborative movement activities, and technology-assisted movement-based tasks. Rather than relying solely on verbal explanation, these strategies aim to help learners associate new vocabulary with actions and contextualised experiences.

Although an increasing number of studies have examined the use of kinesthetic strategies in language classrooms, research findings remain fragmented. Many studies focus on specific contexts, learner groups, or language skills, making it difficult to obtain a clear and comprehensive understanding of how movement-based strategies support vocabulary acquisition and retention, particularly at the primary and secondary school levels. Moreover, while some reviews discuss physical activity or multimodal learning more broadly, there is still a lack of systematic reviews that specifically synthesise empirical evidence on kinesthetic strategies for vocabulary learning among ESL and EFL learners.

To address this gap, this study conducts a systematic literature review of research published between 2016 and 2024 that examines the use of kinesthetic learning strategies in vocabulary instruction for primary and secondary ESL and EFL learners. A total of 15 empirical studies were reviewed to identify the types of kinesthetic strategies employed and to examine their reported effects on vocabulary acquisition and retention, as well as learner motivation and engagement.

The study is guided by the following research questions (RQ):

RQ1: What types of kinesthetic or movement-based strategies have been used to support vocabulary acquisition and/or retention among ESL and EFL learners at the primary and secondary school levels?

RQ2: How effective are kinesthetic strategies in improving vocabulary acquisition and/or retention among primary and secondary school ESL and EFL learners, according to existing studies?

By addressing these questions, this systematic literature review aims to provide educators and researchers with a clearer understanding of how kinesthetic learning strategies have been implemented in vocabulary instruction and how they may be effectively integrated into ESL and EFL classrooms.

LITERATURE REVIEW

Theoretical Foundations Supporting Kinesthetic Vocabulary Learning

Kinesthetic learning strategies are informed by several educational, cognitive, and affective theories that explain how physical movement can support language learning. These theories provide complementary perspectives on vocabulary acquisition and retention among ESL and EFL learners by addressing learner diversity, instructional methods, cognitive mechanisms, and emotional factors. The following section discusses four key theoretical frameworks that underpin the use of movement-based strategies in vocabulary instruction.

Multiple Intelligences Theory, proposed by Gardner (2011), conceptualises intelligence as a set of distinct capacities, one of which is bodily-kinesthetic intelligence. Learners with stronger bodily-kinesthetic tendencies are believed to learn more effectively through physical engagement, hands-on activities, and movement-based experiences. In ESL and EFL classrooms, this theory has been widely used to justify the inclusion of activities such as role play, physical games, and simulations to accommodate diverse learning preferences. Research has shown that incorporating kinesthetic elements can increase learner engagement and support vocabulary learning, particularly among young learners (Boonkongsaen et al., 2020; Ng & Rafiq, 2023).

However, Multiple Intelligences Theory has been criticised for its limited empirical validation and unclear measurement of intelligence types (Waterhouse, 2006; Visser et al., 2006). Critics argue that improvements in learning outcomes may result from increased motivation and instructional variety rather than specific intelligence strengths. Consequently, the theory is best regarded as a pedagogical framework for differentiated instruction rather than a predictive cognitive model of vocabulary learning.

Total Physical Response (TPR), developed by Asher (1977), is a movement-based instructional method grounded in the principle that language comprehension precedes production. In TPR, learners respond physically to verbal commands, allowing them to demonstrate understanding without immediate spoken output. This approach is particularly effective for young and beginner learners, as it reduces anxiety and cognitive load while strengthening form–meaning connections. In vocabulary instruction, TPR has been shown to support the learning of concrete and action-related words through repeated physical association (Nazara, 2019; Shukhratova, 2025).

Recent studies indicate that learners taught through TPR often perform better in short-term vocabulary recall compared to those taught using traditional approaches (Taddese, 2025). However, research also suggests that TPR has limitations, particularly for abstract vocabulary and higher proficiency learners. Its effectiveness may decline if it is overused or applied without progression to more cognitively demanding tasks. These findings suggest that TPR is most effective when integrated with other instructional strategies rather than used as a standalone method.

Embodied Cognition Theory provides a cognitive explanation for why kinesthetic learning strategies may support vocabulary acquisition. This theory posits that learning is grounded in bodily interaction with the environment and that cognitive processes are closely linked to sensorimotor experiences. In vocabulary learning, associating words with gestures or physical actions is believed to enhance memory encoding and retrieval by activating both motor and linguistic systems (Macedonia & Knösche, 2011; Macedonia, 2025).

Empirical studies and systematic reviews have reported that gesture-supported and movement-enriched instruction can lead to improved vocabulary recall and retention compared to purely verbal learning (Andrä et al., 2020; Jusslin et al., 2022; Mayer et al., 2021). However, research also highlights that not all forms of movement are equally effective. The relevance and meaningfulness of physical actions play a crucial role, as arbitrary or excessive movement may not contribute to learning. Thus, embodied cognition supports purposeful and well-designed kinesthetic integration in vocabulary instruction.

Krashen's Affective Filter Hypothesis (1982) emphasises the role of emotional factors such as anxiety, motivation, and self-confidence in second language acquisition. According to this theory, learners with a low affective filter are more receptive to language input, whereas negative emotions can hinder learning. Kinesthetic activities, particularly games and collaborative movement-based tasks, are often associated with increased enjoyment and reduced anxiety, creating a more supportive learning environment for ESL and EFL learners (Tuan, 2017; Al-Obaydi & Pikhart, 2024).

Studies have shown that movement-based vocabulary instruction can enhance learner motivation and participation, especially among young and low-proficiency learners. However, affective benefits alone may not ensure long-term vocabulary retention unless they are supported by structured practice and reinforcement (Taddese, 2025). Therefore, while the Affective Filter Hypothesis explains how emotional conditions facilitate learning, it must be considered alongside cognitive theories to fully account for vocabulary acquisition and retention.

Together, these theories offer a complementary framework for understanding kinesthetic vocabulary learning. Multiple Intelligences Theory emphasises learner diversity and the value of physical engagement, while Total Physical Response provides a practical method for linking language input with bodily action. Embodied Cognition Theory explains how meaningful movement strengthens memory encoding and retrieval, and Krashen's Affective Filter Hypothesis highlights the role of reduced anxiety and increased motivation in facilitating language learning. Collectively, these perspectives explain who benefits from kinesthetic strategies, how they are implemented, why they support vocabulary retention, and under what conditions learning is most effective, thereby forming a coherent theoretical foundation for this review.

Vocabulary Acquisition and Retention

Vocabulary acquisition refers to the process of learning the form, meaning, and use of words in context (Nation, 2013). This process involves both receptive and productive vocabulary knowledge. Receptive vocabulary relates to learners' ability to recognise words during listening and reading, whereas productive vocabulary involves the

active use of words in speaking and writing. Acquisition represents an initial stage of vocabulary development, as it reflects learners' first encounters with lexical items and their emerging understanding of word meaning and usage.

Vocabulary retention, in contrast, refers to learners' ability to store, recall, and accurately use previously learned vocabulary over time and across different communicative contexts (Zou, Xie, & Wang, 2021). Retention requires deeper cognitive processing than initial acquisition, as words must be consolidated into long-term memory to support fluent and meaningful language use (Schmitt, 2014). Without sufficient retention, newly acquired vocabulary may remain short-lived and unavailable for future communication, limiting learners' ability to develop proficiency and express ideas effectively.

At the school level, vocabulary knowledge plays a crucial role in supporting learners' comprehension and production across language skills and academic subjects. Learners with limited vocabulary often face difficulties understanding texts and participating in classroom communication (Webb & Nation, 2017). While commonly used instructional practices such as repetition, memorisation, and translation may support initial exposure to new words, research suggests that these approaches alone may not sufficiently promote long-term retention, particularly when learners are not actively engaged with the target vocabulary (Barcroft, 2018; Schmitt, 2014).

Recent studies emphasise that effective vocabulary retention is supported by active involvement, meaningful context, and repeated exposure in varied learning situations (Zou et al., 2021). In this regard, movement-based or kinesthetic learning strategies have been increasingly examined for their potential to strengthen vocabulary learning processes. Empirical research indicates that physically engaging learners through gestures, role-play, and movement-based tasks can enhance attention, deepen processing, and support stronger form–meaning connections, which are essential for retention (Andrä et al., 2020; Jusslin et al., 2022; Macedonia, 2025). Such strategies are particularly relevant in primary and secondary education, where learners benefit from concrete, interactive, and multisensory learning experiences.

Therefore, vocabulary acquisition and retention should be viewed as interconnected but distinct processes that require instructional approaches beyond initial exposure. Kinesthetic learning strategies offer a pedagogical approach that actively involves learners cognitively, emotionally, and physically, thereby addressing key challenges associated with vocabulary retention in school-based ESL and EFL contexts.

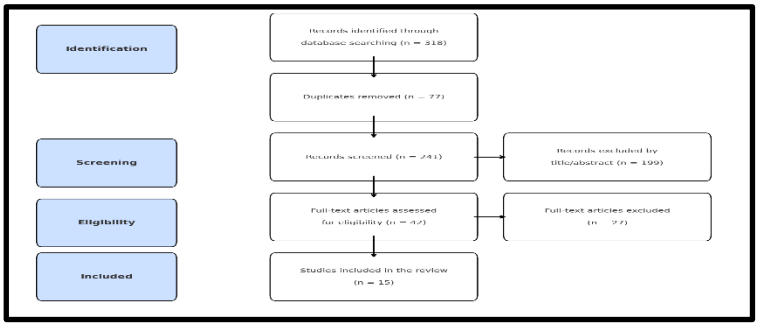
METHODOLOGY

This systematic literature review (SLR) was conducted to examine the types and effectiveness of kinesthetic strategies used for vocabulary acquisition and retention among primary and secondary ESL and EFL learners. The review followed the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency and replicability.

PRISMA Overview

The PRISMA framework was used to guide the four key phases of the literature review process, including Identification, Screening, Eligibility, and Inclusion. Figure 1 presents the PRISMA flow diagram showing how the 15 final studies were selected from an initial pool of 318 articles.

Figure 1. PRISMA 2020 Flow Diagram outlining the selection process of studies included in this review.



Identification Phase

Search Strategy

A comprehensive search was carried out across five major academic databases: Scopus, SpringerLink, SAGE Journals, ERIC, and EBSCOhost. These databases were selected for their strong coverage in education, applied linguistics, and classroom-based learning research.

The search terms were carefully selected and combined using Boolean operators to capture relevant studies:

("vocabulary retention" OR "word learning" OR "lexical development" OR "vocabulary acquisition") AND ("kinesthetic learning" OR "embodied learning" OR "movement-based strategies" OR "movement-based learning" OR "multisensory learning" OR "Total Physical Response" OR TPR OR "gesture-based learning" OR "active learning in language acquisition") AND ("ESL" OR "EFL" OR "English language learners" OR "second language acquisition") AND ("primary school" OR "elementary school" OR "young learners" OR "middle school" OR "secondary school" OR "K-12" OR "school-age children") NOT ("kindergarten" OR "preschool")

The search was limited to articles:

a. Published in English

b. Published between 2016 and 2024

c. Focused on school-aged ESL or EFL learners

d. Included measurable outcomes related to vocabulary acquisition and/or retention.

A total of 318 studies were initially identified through this process.

Screening Phase

Following the initial identification, 77 duplicate records were removed. The remaining 241 studies were screened based on their titles and abstracts. At this stage, 199 studies were excluded because they did not focus on vocabulary learning, did not involve kinesthetic or movement-based strategies, or targeted populations outside the scope of this review. This screening ensured that only potentially relevant studies progressed to the next phase.

Eligibility Phase

In the eligibility phase, 42 full-text articles were retrieved and assessed against predefined inclusion and exclusion criteria (see Table 1). Each study was examined in detail to determine its relevance to the research objectives. A total of 27 studies were excluded due to factors such as inappropriate learner age group, absence of a kinesthetic intervention, lack of empirical data on vocabulary outcomes, or insufficient methodological detail. Consequently, 15 studies met all inclusion criteria and were retained for final analysis.

Table 1. Inclusion and Exclusion Criteria

Criterion	Inclusion Criterion	Exclusion Criterion
Population	Studies involving ESL/EFL learners at primary or secondary school levels (approximately ages 6–18)	Studies focusing on preschool (below age 6) or adult/university learners
Focus of Study	Studies that investigate vocabulary acquisition and/or retention supported by kinesthetic or movement-based strategies	Studies that do not target vocabulary learning or do not involve movement-based instructional methods

Intervention Type	Studies using kinesthetic, embodied, gesture-based, Total Physical Response (TPR), drama, or physical games	Studies using non-kinesthetic strategies (e.g., traditional lecture, reading-only, digital-only methods)
Language Learning Context	Studies conducted in ESL, EFL, or second language acquisition classroom contexts	Studies in L1 (first language) development or unrelated to second language learning
Study Design	Empirical research (quantitative, qualitative, or mixed-methods); peer-reviewed journal articles or conference proceedings	Non-empirical works (e.g., opinion pieces, conceptual papers); grey literature unless justified
Publication Year	Published between 2016–2024 to ensure recent and relevant findings	Published before 2016
Language of Publication	Articles published in English	Articles published in languages other than English
Accessibility	Full-text available online or through institutional access	Abstract-only, paywalled without access, or incomplete reports

Grey literature, such as unpublished theses or institutional reports, was excluded to maintain methodological rigor and ensure the reliability of findings. Peer-reviewed journal articles and selected conference proceedings were prioritised due to their formal review processes and relevance in reporting recent classroom-based empirical research.

Inclusion Phase

After applying all criteria, 15 studies were included in the final review. These studies were analyzed for the types of kinesthetic strategies used, their effectiveness in vocabulary acquisition and retention, and the learner contexts involved.

Data Extraction

A structured data extraction form was used to collect the following information from each selected study:

a. Author(s) and year of publication

b. Country and participant details (age, level, sample size)

c. Type of kinesthetic strategy used

d. Research design and methods

e. Measured outcomes related to vocabulary acquisition or retention

f. Reported benefits (e.g., learner motivation, engagement, memory)

This process ensured consistency and facilitated comparative analysis across studies.

Quality Appraisal of Included Studies

To enhance the methodological rigor of the review, a quality appraisal was conducted for all included studies using an adapted critical appraisal checklist based on established SLR guidelines. The appraisal focused on clarity of research design, adequacy of participant description, appropriateness of kinesthetic intervention, validity of vocabulary measurement instruments, and transparency of data analysis procedures.

Each study was categorised as having high, moderate, or low methodological quality. No study was excluded solely based on quality; however, appraisal outcomes were considered when interpreting findings in the discussion section. This approach ensured that conclusions were informed by both reported outcomes and the robustness of the underlying research designs.

Contextual and Descriptive Profiling of Studies

To provide contextual background, the included studies were descriptively profiled according to educational level, vocabulary learning phase, and learner context. While database distribution was recorded, analytical emphasis was placed on characteristics more directly aligned with the research questions.

Table 2 Level of education (Primary or Secondary)

Database	Primary	Secondary
Scopus	3	3
Springer	1	
Sage	1	
ERIC	2	
EBSCO	4	1

Table 3 Vocabulary learning phase (Acquisition, Retention, or Both)

Database	Vocabulary Acquisition	Vocabulary Retention	Both
Scopus	4		2
Springer			1
Sage		1	
ERIC			2
EBSCO	4		1

Table 4 Learner context (ESL or EFL)

Database	ESL	EFL
Scopus	1	5
Springer		1
Sage		1
ERIC	1	1
EBSCO	2	3

Overall, a slightly higher number of studies focused on primary-level learners, reflecting the suitability of movement-based strategies for younger students. Most studies examined vocabulary acquisition, with fewer

explicitly measuring long-term retention, indicating a gap in sustained vocabulary assessment. Additionally, the majority of studies were conducted in EFL contexts, suggesting a need for further research in ESL classroom environments.

Patterns of Implementation Across Age Groups, Vocabulary Outcomes, and Learner Contexts

Descriptive profiling of the included studies provided additional insights into how kinesthetic strategies have been implemented across instructional contexts. The distribution across learner age groups showed a slightly higher number of studies focusing on primary learners, particularly from Scopus and EBSCO-indexed journals. This trend reflects the suitability of movement-based learning for young children, who often benefit from high physical engagement and shorter, interactive tasks.

In terms of vocabulary outcomes, most studies prioritized vocabulary acquisition over retention. Scopus and EBSCO each contributed four studies focused on acquisition, while only a few, particularly from Sage and ERIC examined retention exclusively. However, several studies (e.g., Andrä et al., 2020; Liu & Chen, 2021) addressed both aspects, reflecting a growing awareness of the need to measure not just immediate learning but also the durability of vocabulary knowledge over time.

The majority of studies were also conducted in EFL settings, with relatively fewer focused on ESL learners. Scopus, for instance, contributed five EFL studies compared to just one ESL study. This imbalance may point to a research gap in ESL contexts, especially in immersive environments where English is used as the medium of communication. As EFL contexts often rely heavily on formal instruction, kinesthetic strategies may be more deliberately applied there to counteract passive learning environments and increase learner engagement.

Collectively, this profiling supports the interpretation that kinesthetic strategies are particularly well-suited for young, beginner-level learners in EFL classrooms, where physical interaction can compensate for limited language exposure and enhance motivation.

FINDINGS

From a systematic review of educational research published between 2016 to 2024 in kinesthetic strategy to enhance vocabulary acquisition and retention among ESL and EFL primary and secondary learners, 15 articles were chosen to be the most appropriate and they formed the basis for answering the proposed research questions.

RQ1: What types of kinesthetic or movement-based strategies have been used to support vocabulary acquisition and/or retention among ESL and EFL learners at the primary and secondary school levels?

As for the second research question, the articles were reviewed in terms of kinesthetic or movement-based strategies have been used to support vocabulary acquisition and/or retention among ESL and EFL learners at the primary and secondary school levels. The reviews are as elaborated in table below.

No	Author(s) & year	Kinesthetic Strategy	Description of the Strategy
9	Al-Obaydi, L. H., & Pikhart, M. (2024)	Total Physical Response (TPR)"	Students used physical movements to represent spelling patterns and vocabulary during learning activities.
13	Liu, P.-L., Chen, C.-J., & Chen, H.-C. (2024)	Personalized Total Physical Response (TPR)	Learners created their own gestures and movement-based videos to learn target vocabulary, while the control group used textbook-based dance activities.
31	Akdağ Çimen, B., & Çeşme, H. (2022)	Total Physical Response (TPR)	TPR activities required learners to respond physically to vocabulary-related commands and were compared with CLT instruction.

171	Andrä, C., Mathias, B., Schwager, A., Macedonia, M., & von Kriegstein, K. (2020)	Self-performed iconic gestures	Children used symbolic gestures to represent vocabulary and were compared with visual-only and verbal-only learning conditions.
196	Liu, S., & Chen, S. (2021)	Total Physical Response (TPR)	Vocabulary was taught through teacher-led and student-imitated physical movements and games integrated into lessons.
211	Palaigeorgiou et al., 2017	Task-Based Language Learning (TBLL) approach combined with embodied learning Augmented reality role-play with finger-based physical interaction	Learners completed vocabulary tasks through physical interaction with a sensor-augmented 3D environment.
261	Husanović, D. (2022)	Total Physical Response (TPR)	Vocabulary was taught using TPR in an online setting and compared with Form–Meaning–Use (FMU) instruction.
293	Nekooi, N. & Shahrokhi, M. (2016)	Total Physical Response (TPR)	One group learned vocabulary through TPR-based physical commands, while the control group used the Direct Method.
1	Pacheco Delgado, E. F., Villafuerte-Holguín, J., & López Vélez, J. (2022)	Total Physical Response (TPR), integrated with dancing and singing	Vocabulary learning was supported through TPR activities integrated with singing and dancing to English songs.
11	Wang S., 2024	Biomechanical-based interventions: posture training, movement, and sensorimotor activities	Posture training and sensorimotor movement activities were incorporated into English lessons to support learning.
23	Yıldız, D., Fidan, U., Yıldız, M., Er, B., Ocak, G., Güngör, F., Ocak, I., & Akyildiz, Z. (2024)	Kinesthetic movement through interactive game-based digital floor system	Learners practised vocabulary through a Kinect-based digital floor game that responded to full-body movement.
174	Cannon, A. S. (2016)	Drama-based learning	Drama-based instruction used role play, physical statues, and movement to support academic vocabulary learning.
175	Wang, F., Hwang, W. Y., Li, Y. H., Chen, P. T., & Manabe, K. (2019)	Collaborative Total Physical Response (CTPR) using Kinect-based technology	Students worked in pairs to respond to English instructions using body movements detected by Kinect sensors.
225	Sarhan, N., Good, J., & Howland, K. (2020).	Acting (gesture-based interaction)	Vocabulary learning was supported through gesture-based acting in a digital game and compared with less physical interaction modes.

248	Dongsanniwas, W., & Sukying, A. (2024)	Total Physical Response (TPR)	Multisensory TPR activities combined physical movement with visual, auditory, and tactile input for vocabulary learning.

Total Physical Response (TPR)

TPR was the most frequently reported kinesthetic strategy across the reviewed studies. In its basic form, TPR involved learners responding physically to vocabulary-related commands through actions and games (Liu & Chen, 2021; Akdağ Çimen & Çeşme, 2022). These implementations were most common in primary school contexts and focused mainly on concrete vocabulary items.

Several studies reported **adapted forms of TPR**, including game-based TPR (Al-Obaydi & Pikhart, 2024), personalised TPR (Liu, Chen, & Chen, 2024), multisensory TPR (Dongsanniwas & Sukying, 2024), musical TPR involving singing and dancing (Pacheco Delgado et al., 2022), and online TPR delivered through virtual platforms (Husanović, 2022). Although these adaptations differed in structure and delivery, physical movement remained the central instructional feature.

TPR was also compared with other instructional approaches, such as the Direct Method, Communicative Language Teaching (CLT), and Form-Meaning-Use (FMU) instruction (Nekooi & Shahrokhi, 2016; Akdağ Çimen & Çeşme, 2022; Husanović, 2022). These comparative designs allowed for examination of relative effectiveness rather than isolated outcomes.

Gesture-Based and Drama-Based Strategies

Gesture-based strategies were reported in several studies as alternatives or complements to TPR. These strategies involved learners using symbolic or iconic gestures to represent vocabulary meaning, often generated by the learners themselves rather than modelled by the teacher (Andrä et al., 2020; Sarhan et al., 2020).

Drama-based strategies extended gesture use through role-play, statues, and physical tableaux. Cannon (2016) implemented drama-based instruction to support the learning of academic vocabulary among young ESL learners. These activities required learners to enact vocabulary within contextualised scenarios rather than responding to discrete commands.

Compared to TPR, gesture- and drama-based strategies placed greater emphasis on expressive movement and learner interpretation. However, fewer studies employed these approaches, and their implementation was generally limited to specific vocabulary sets or instructional periods.

Technology-Enhanced Kinesthetic Learning

Technology-enhanced kinesthetic strategies integrated physical movement with digital learning environments. These studies used tools such as Kinect sensors, interactive digital floor systems, and augmented reality to support vocabulary learning through bodily interaction (Palaigeorgiou et al., 2017; Wang et al., 2019; Yıldız et al., 2024).

In these interventions, learners responded to vocabulary prompts by moving across physical spaces, touching objects, or performing actions detected by sensors. Several studies incorporated collaborative or game-based elements, requiring learners to work in pairs or groups. While these approaches were less frequently reported than TPR, they demonstrated a wider range of movement types and technological integration across both primary and secondary contexts.

Biomechanical and Sensorimotor-Based Approaches

Biomechanical or sensorimotor-based approaches differed from other kinesthetic strategies in that movement was not always directly linked to specific vocabulary items. Instead, these approaches focused on posture training, movement routines, and sensorimotor integration embedded within English lessons (Wang, 2024).

This category was represented by a limited number of studies and was applied primarily at the secondary level. Compared to TPR and gesture-based strategies, biomechanical approaches emphasised general physical readiness and movement regulation rather than direct vocabulary enactment.

RQ2: How effective are kinesthetic strategies in improving vocabulary acquisition and/or retention among primary and secondary school ESL and EFL learners, according to existing studies?

To address RQ2, the findings of the reviewed studies were synthesised to examine the effectiveness of kinesthetic strategies on vocabulary acquisition and retention. Overall, most studies reported positive outcomes; however, the strength and consistency of these effects varied across strategies, learner groups, and assessment focus.

No	Author(s) & year	Participant & Context	Vocabulary Learning Phase	Results
9	Al-Obaydi, L. H., & Pikhart, M. (2024)	20 secondary-level female EFL learners (aged 14–15) in Iraq.	Both acquisition and retention	TPR improved vocabulary learning, spelling accuracy, and retention, with increased learner motivation and participation.
13	Liu, P.-L., Chen, C.-J., & Chen, H.-C. (2024)	72 primary-level EFL learners (aged 7–9) in Taiwan, comprising higher- and lower-ability groups.	Focus on recalling the meaning of vocabulary (retention)	Personalized TPR enhanced vocabulary recall, particularly for higher-ability learners, while lower-ability learners benefited similarly from both personalized and traditional TPR.
31	Akdağ Çimen, B., & Çeşme, H. (2022)	56 primary-level EFL learners in Turkey, divided into TPR and CLT groups.	Both acquisition and retention	Both TPR and CLT improved vocabulary learning and reduced speaking anxiety, with TPR producing greater gains in vocabulary and oral proficiency.
171	Andrä, C., Mathias, B., Schwager, A., Macedonia, M., & von Kriegstein, K. (2020)	54 primary-level EFL learners (aged 8) in Germany.	Both acquisition and long-term retention	Gesture- and picture-enriched instruction produced stronger vocabulary learning and retention than non-enriched methods, with effects lasting up to six months.
196	Liu, S., & Chen, S. (2021)	80 primary-level learners in Hangzhou, China, supported by English teachers.	Both acquisition and retention	TPR supported vocabulary learning and recall in primary learners, with high levels of engagement and positive classroom response.
211	Palaigeorgiou et al., 2017	37 primary-level learners participating in a mixed-reality learning environment in Greece.	Acquisition	Hands-on, game-based activities improved learner motivation, focus, and vocabulary recall through physical interaction.
261	Husanović, D. (2022)	40 primary-level EFL learners (aged 9–10)	Acquisition	TPR led to greater vocabulary gains than FMU instruction, particularly among boys, kinesthetic learners, and

		in Iran.		higher-achieving students.
293	Nekooi, N. & Shahrokhi, M. (2016)	65 primary-level EFL learners (aged 6–7) from public schools in Ecuador.	Acquisition	TPR resulted in better vocabulary learning and lower learner stress compared to the Direct Method.
1	Pacheco Delgado, E. F., Villafuerte-Holguín, J., & López Vélez, J. (2022)	81 primary-level EFL learners in Türkiye.	Acquisition (measured via pre- and post-tests)	TPR activities involving singing and dancing increased motivation and vocabulary learning among young EFL learners.
11	Wang S., 2024	18 middle school English learners (aged 12–14) in the United States.	Acquisition (measured through vocabulary tests, grammar, memory, fluency)	Biomechanical movement activities improved vocabulary learning alongside gains in attention, memory, and language fluency.
23	Yıldız, D., Fidan, U., Yıldız, M., Er, B., Ocak, G., Güngör, F., Ocak, I., & Akyildiz, Z. (2024)	79 vocational high school EFL learners (aged 16–17) in China.	Acquisition (measured using pre- and post-tests)	A kinesthetic, game-based system using full-body movement enhanced vocabulary learning and learner engagement more than traditional methods.
174	Cannon, A. S. (2016)	36 primary-level Arab ESL learners (aged 7–9) in the United Kingdom.	Acquisition (focus on developing academic language competence)	Drama-based instruction improved academic vocabulary use, learner engagement, and confidence compared to traditional teaching.
175	Wang, F., Hwang, W. Y., Li, Y. H., Chen, P. T., & Manabe, K. (2019)	27 primary-level EFL learners in Thailand.	Acquisition	Collaborative TPR supported by Kinect technology produced stronger vocabulary learning and retention than individual or non-kinesthetic approaches.
225	Sarhan, N., Good, J., & Howland, K. (2020).	20 secondary-level female EFL learners (aged 14–15) in Iraq.	Both acquisition and early retention	Gesture-based acting activities increased learner preference, engagement, and vocabulary learning, particularly for concrete words.
248	Dongsanniwas, W., & Sukying, A. (2024)	72 primary-level EFL learners (aged 7–9) in Taiwan.	Both acquisition and retention	Multisensory TPR activities improved both receptive and productive vocabulary, with stronger gains in receptive knowledge.

Vocabulary Acquisition Outcomes

Improvements in immediate vocabulary acquisition were reported across most studies employing kinesthetic strategies. TPR-based interventions frequently resulted in higher post-test scores than comparison methods such as the Direct Method, CLT, or FMU instruction (Nekooi & Shahrokhi, 2016; Akdağ Çimen & Çeşme, 2022; Husanović, 2022).

Gesture-based and drama-based strategies also demonstrated gains in vocabulary learning. For example, Andrä et al. (2020) reported higher vocabulary scores for learners using gesture-enriched instruction compared with visual-only and verbal-only conditions. Technology-enhanced approaches similarly reported vocabulary gains, particularly for tasks involving concrete vocabulary and interactive movement (Palaigeorgiou et al., 2017; Yıldız et al., 2024).

However, not all studies reported large or uniform gains. In Liu, Chen, and Chen (2024), personalised TPR produced stronger acquisition gains for higher-ability learners, while lower-ability learners showed similar performance across personalised and traditional TPR conditions. These findings indicate that the effectiveness of kinesthetic strategies for acquisition may vary depending on learner characteristics and instructional design.

Vocabulary Retention Outcomes

Fewer studies explicitly measured long-term vocabulary retention through delayed post-tests. Where delayed measures were included, gesture-based and multisensory approaches demonstrated sustained retention over time (Andrä et al., 2020; Dongsanniwas & Sukying, 2024).

In contrast, several studies assessed only short-term or immediate retention, limiting conclusions about long-term effects. Some studies reported stronger retention for receptive vocabulary than productive use (Dongsanniwas & Sukying, 2024). Other studies noted that kinesthetic strategies were more effective for concrete vocabulary than abstract items (Sarhan et al., 2020). These findings suggest that retention outcomes were not consistently strong across all vocabulary types.

Learner Engagement and Differential Effects

Across the reviewed studies, kinesthetic strategies were commonly associated with increased learner engagement and motivation (Pacheco Delgado et al., 2022; Wang et al., 2019). However, engagement gains did not always translate into proportionally higher vocabulary outcomes.

Several studies reported differential effects across learner groups. TPR was reported to be particularly effective for boys, kinesthetic learners, or higher-achieving students in some contexts (Husanović, 2022), while other studies found no significant gender differences (Nekooi & Shahrokhi, 2016). In technology-enhanced settings, collaborative movement activities appeared to benefit learners' participation more than individual interaction modes (Wang et al., 2019).

Importantly, although none of the reviewed studies reported entirely negative outcomes, several findings indicated limited or conditional effectiveness of kinesthetic strategies. In some comparative studies, vocabulary gains between experimental and control groups were comparable, suggesting that movement-based instruction did not consistently outperform non-kinesthetic approaches for all learners or vocabulary types (e.g., Liu, Chen, & Chen, 2024). Other studies reported that kinesthetic strategies were more effective for concrete and action-related vocabulary, while gains for abstract words were weaker or less consistent (Sarhan et al., 2020). In addition, a number of studies relied on immediate or short-term post-tests, making it difficult to determine whether observed improvements were sustained over time (Palaigeorgiou et al., 2017; Yıldız et al., 2024). Some technology-enhanced interventions also reported strong engagement outcomes without clearly isolating vocabulary learning effects from motivational factors (Wang et al., 2019). These findings indicate that while kinesthetic strategies are generally beneficial, their effectiveness may depend on instructional design, vocabulary type, learner characteristics, and assessment duration.

SUMMARY OF FINDINGS

In summary, the findings show that a range of kinesthetic strategies such as TPR, gesture- and drama-based approaches, technology-enhanced kinesthetic learning, and biomechanical movement strategies, have been used to support vocabulary learning in primary and secondary ESL and EFL contexts. While most studies reported positive effects on vocabulary acquisition and, in some cases, retention, the strength of these effects varied according to strategy type, learner profile, vocabulary focus, and assessment design. These findings provide a descriptive foundation for further interpretation in the discussion chapter.

DISCUSSION

This section summarises the key aspects found in the findings and discusses them in relation to previous literature.

Kinesthetic Strategies and Vocabulary Acquisition and Retention

The findings of this review suggest that kinesthetic strategies generally support vocabulary acquisition and, in some cases, retention among primary and secondary ESL and EFL learners. When interpreted through contemporary learning theories, these outcomes indicate that integrating physical movement into language instruction can enhance how learners process, encode, and retrieve new lexical items. This aligns with previous research suggesting that vocabulary learning benefits from multimodal input and active learner engagement (Nation, 2013; Schmitt, 2019).

Across the reviewed studies, learners exposed to kinesthetic instruction, whether through TPR, gesture enactment, drama-based activities, or technology-supported movement, demonstrated higher vocabulary gains than learners taught using predominantly non-kinesthetic approaches. These patterns reinforce earlier findings that vocabulary acquisition is strengthened when learners are actively involved in the learning process rather than passively receiving input (Barcroft, 2018; Webb & Nation, 2017).

However, the findings also suggest that kinesthetic strategies are not uniformly effective across all learner groups or instructional contexts. For example, personalised or learner-generated movement appeared to benefit higher-ability learners more strongly than lower-ability learners (Liu, Chen, & Chen, 2024). This indicates that while kinesthetic strategies may enhance vocabulary learning, their effectiveness may depend on learners' cognitive readiness, proficiency level, and ability to regulate learning independently. Such variation supports the view that instructional effectiveness emerges from the interaction between pedagogy and learner characteristics rather than from the strategy alone (Dörnyei & Ryan, 2015).

Diversity and Pedagogical Evolution of Kinesthetic Instruction

Beyond confirming the effectiveness of kinesthetic strategies, this review highlights the diversity and pedagogical evolution of movement-based vocabulary instruction. While TPR remains the most frequently employed approach, its application has expanded considerably since its original formulation. Contemporary studies demonstrate a shift from rigid command-response patterns toward more interactive, learner-centred, and multimodal implementations, such as game-based spelling tasks, musical TPR, and online adaptations (Al-Obaydi & Pikhart, 2024; Pacheco Delgado et al., 2022; Husanović, 2022).

Importantly, the findings also show that non-TPR strategies play a meaningful role in vocabulary development. Gesture-based instruction, which encourages learners to create symbolic representations of word meaning, appears particularly effective for supporting retention when compared with visual-only or verbal-only input (Andrä et al., 2020; Macedonia, 2019). Drama-based approaches further extend this by embedding vocabulary within contextualised and emotionally engaging scenarios, allowing learners to use language expressively and communicatively (Cannon, 2016; Kao & O'Neill, 2014).

Technology-enhanced kinesthetic strategies represent another significant development. Studies using Kinect sensors, interactive digital floors, and augmented reality environments demonstrate how physical movement can

be integrated with digital affordances to create immersive vocabulary learning experiences (Palaigeorgiou et al., 2017; Wang et al., 2019; Yıldız et al., 2024). These approaches are particularly relevant in contemporary classrooms, where digital tools increasingly mediate language learning. However, their effectiveness appears closely tied to task design and duration rather than technology alone.

The inclusion of biomechanical movement-based instruction (Wang, 2024) introduces an innovative dimension to kinesthetic learning research. Unlike traditional strategies that directly link movement to vocabulary meaning, biomechanical approaches focus on posture, balance, and sensorimotor regulation as foundations for cognitive readiness. While evidence remains limited, this approach broadens existing conceptions of how physical activity may indirectly support language learning and signals a potential direction for interdisciplinary research.

Methodological, Contextual, and Outcome-Related Limitations

Despite the generally positive findings reported across the reviewed studies, several methodological limitations should be considered when interpreting the effectiveness of kinesthetic strategies. A key concern is the short duration of many interventions, with numerous studies relying on brief instructional periods and immediate post-tests. As vocabulary learning is incremental, such designs limit conclusions about long-term retention. Only a small number of studies included delayed post-tests, highlighting a need for longitudinal research that examines sustained vocabulary development (Nation, 2022; Schmitt, 2019).

Another limitation relates to sample size and research scope. Several studies, particularly those involving technology-enhanced or biomechanical approaches, employed relatively small or context-specific samples. While these studies provided useful exploratory insights, limited participant numbers reduce the generalisability of findings (Creswell & Creswell, 2018). In addition, many studies focused on specific age groups or proficiency levels, making it difficult to compare results across diverse learner populations.

The reviewed literature also revealed neutral or conditional outcomes that were less prominently reported. Although no study documented entirely negative effects, several comparative studies reported similar vocabulary gains between experimental and control groups, suggesting that kinesthetic strategies may function more effectively as complementary approaches rather than replacements for traditional instruction (Liu, Chen, & Chen, 2024; Nekooi & Shahrokhi, 2016). Moreover, stronger effects were often observed for concrete vocabulary than for abstract lexical items, indicating that the effectiveness of movement-based instruction may vary depending on vocabulary type (Sarhan et al., 2020).

Finally, a notable contextual imbalance was observed, with a strong dominance of EFL settings and limited representation of ESL contexts. This may reflect practical challenges in implementing experimental interventions in ESL classrooms, such as curriculum constraints and learner heterogeneity (Shimray & Wangdi, 2025). In addition, the tendency for studies to emphasise positive outcomes raises concerns about possible reporting bias. Greater transparency in reporting neutral or context-dependent findings would contribute to a more balanced and reliable understanding of the pedagogical value of kinesthetic strategies.

IMPLICATIONS

This review shows that kinesthetic strategies can be effective in supporting ESL and EFL learners' vocabulary acquisition and retention, particularly when they are carefully planned and aligned with learning objectives. Teachers should not see these strategies as merely fun activities, but as purposeful instructional tools that can enhance engagement and support learning. Movement-based methods such as Total Physical Response (TPR), acting, gestures, and hands-on games can make vocabulary learning more meaningful, especially for young learners or students with lower English proficiency, provided that classroom conditions such as time, space, and class size are taken into account.

Teachers can also adapt kinesthetic strategies to fit different classroom contexts. In classrooms with limited technology, simple actions, gestures, and body movements can be integrated into daily lessons without requiring additional resources. In schools with greater technological support, teachers may explore digital options such as interactive floor games, gesture-based applications, or virtual learning environments. However, the use of

technology should be guided by instructional goals rather than novelty, as effective learning depends more on task design than on the tools themselves.

Kinesthetic strategies are also relevant for addressing diverse learner needs. They are particularly beneficial for learners who require physical activity to maintain attention, such as kinesthetic learners or pupils who struggle with conventional, sedentary instruction. In addition, strategies such as role-play and drama can provide inclusive opportunities for shy or less confident learners to participate, interact, and express meaning in a supportive classroom environment.

From a teacher training and professional development perspective, it is important for teachers to be equipped with both theoretical understanding and practical skills related to kinesthetic learning. Training programmes should focus on how to select and adapt movement-based activities according to learners' age, proficiency level, lesson objectives, and classroom constraints. Teachers should also be guided on how to observe and assess vocabulary learning outcomes when kinesthetic strategies are used, rather than relying solely on traditional written tests.

At the curriculum and policy level, the findings suggest that kinesthetic learning principles could be more explicitly integrated into syllabus design and instructional guidelines. Curriculum planners may consider encouraging flexible teaching approaches that allow movement-based activities to be embedded within vocabulary lessons, particularly at the primary level. In addition, assessment practices could be expanded to include formative and performance-based measures, such as oral tasks, role-play, or observational checklists, to better capture vocabulary use developed through kinesthetic learning.

Finally, further research is needed in authentic ESL classroom contexts, which remain underrepresented in the existing literature. Future studies should also examine the long-term effects of kinesthetic strategies on vocabulary retention and explore how these approaches can be sustained within real classroom constraints. Comparative research across different kinesthetic methods and learning contexts would contribute to a more balanced understanding of how movement-based instruction can support vocabulary learning in both traditional and contemporary educational settings.

CONCLUSION

This review examined how kinesthetic strategies support vocabulary acquisition and retention among ESL and EFL learners in primary and secondary school settings. Overall, the findings indicate that movement-based strategies such as Total Physical Response (TPR), gesture use, drama, and interactive digital tools can support learners in acquiring new vocabulary and, in some cases, retaining it over time. By linking language input with physical action, these strategies provide learners with alternative ways to process and practise vocabulary beyond traditional, text-based instruction.

The review also identified a wide range of kinesthetic approaches, ranging from traditional TPR to more innovative methods such as augmented reality and digital floor systems. These strategies were frequently reported as beneficial for young learners, kinesthetic learners, and students with lower language proficiency. At the same time, the review revealed that most existing studies were conducted in EFL contexts and often focused on short-term learning outcomes. This highlights the need for further investigation into long-term vocabulary retention as well as the applicability of kinesthetic strategies in ESL classrooms, where learning conditions and learner needs may differ.

While the overall findings suggest positive outcomes, the conclusions of this review should be interpreted with caution. The number of studies included was relatively limited, and variations in research design, sample size, intervention duration, and assessment methods may have influenced reported outcomes. In addition, the uneven representation of educational contexts restricts the generalisability of the findings across different learning environments.

In conclusion, kinesthetic strategies offer flexible and inclusive approaches to vocabulary instruction when applied thoughtfully and in context. Rather than serving as standalone solutions, these strategies may be most

effective when integrated alongside other instructional methods. Continued research, particularly in under-researched ESL settings and with longer intervention periods, is needed to strengthen the evidence base and inform more balanced and context-sensitive applications of movement-based language learning.

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