

Exploring the Potential of Physical Gamification for Meaningful English Language Learning: Evidence from Sound Expedition

Noor Durrah Farahi Alias, *Nur Jannah Jamil,

Universiti Malaysia Terengganu

*Corresponding author

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ABSTRACT

Meaningful English language learning requires learners to participate actively in authentic communicative experiences that integrate listening, speaking, collaboration, and purposeful language use. Although gamification has been widely recognised for enhancing learner engagement, existing research has focused predominantly on digital learning environments, leaving the educational potential of physically gamified language learning comparatively underexplored. This study explored the potential of Sound Expedition, a physically gamified English language learning intervention, to facilitate meaningful learning through purposeful movement, authentic communication, and collaborative interaction. A convergent mixed-methods design was employed involving undergraduate students from a Malaysian public university. Quantitative data were collected using matched pre- and post-intervention self-assessment questionnaires measuring learners' self-perceived listening and speaking confidence, while qualitative data were gathered through post-intervention reflective responses. Descriptive statistics and paired sample *t* tests were used to analyse the quantitative data, whereas qualitative data were analysed using thematic analysis. The quantitative findings revealed modest increases in learners' self-perceived listening and speaking confidence, although the changes were not statistically significant. In contrast, the qualitative findings demonstrated consistently positive perceptions and learning experiences, highlighting purposeful movement, authentic communication, collaborative interaction, vocabulary retrieval, and meaningful engagement as central features of the intervention. Integrating the quantitative and qualitative findings suggests that the educational value of Sound Expedition extends beyond immediate measurable gains in learners' confidence by creating authentic opportunities for learners to communicate in English through physically engaging and collaborative learning experiences. This study contributes to the emerging literature on physical gamification by providing empirical evidence of its potential to support meaningful English language learning and offers practical insights for designing movement-based language learning interventions in higher education.

Keywords: physical gamification; meaningful English language learning; English language learning; communicative language teaching; embodied learning;

INTRODUCTION

The ability to communicate effectively in English has become an essential competency in higher education, enabling learners to participate confidently in academic, professional, and intercultural contexts. Consequently, English language education has increasingly shifted from emphasising the mastery of linguistic knowledge towards developing learners' communicative competence through meaningful participation in authentic language use (Canale & Swain, 1980; Richards, 2006). Within this perspective, successful language learning extends beyond the acquisition of vocabulary and grammatical structures to include learners' ability to comprehend spoken language, express ideas confidently, negotiate meaning, and interact purposefully with others in real world communicative situations (Nunan, 2004; Richards, 2008).

In response to this pedagogical shift, English language educators have increasingly adopted learner centred instructional approaches that promote active participation, collaboration, and authentic communication. Among these approaches, gamification has emerged as a promising strategy for enhancing learner engagement by incorporating selected game elements into educational activities without transforming learning into a complete game (Deterding et al., 2011; Kapp, 2012). Previous studies have consistently reported that gamification can increase learners' motivation, participation, enjoyment, and willingness to engage in language learning activities, particularly within English as a Foreign Language (EFL) and English as a Second Language (ESL) contexts (Hamari et al., 2014; Chan & Lo, 2024). Rather than serving solely as a motivational tool, well designed gamified activities can create authentic opportunities for learners to communicate, solve problems collaboratively, and apply language meaningfully while pursuing shared learning goals.

Despite these reported benefits, existing research has concentrated predominantly on digital gamification, where online platforms, mobile applications, and learning management systems are used to deliver game-based learning experiences (Laura-De La Cruz et al., 2023; Chan & Lo, 2024). Although these digital environments have demonstrated considerable potential for increasing learner engagement, they often provide limited opportunities for learners to engage in face-to-face communication, collaborative problem solving, and physically active interaction that characterise authentic language use. Dichev and Dicheva (2017) further argue that the effectiveness of gamification depends not merely on the inclusion of game elements but on how these elements are meaningfully integrated into sound pedagogical design. This suggests that educational outcomes may be influenced as much by the learning environment and instructional approach as by the gamified features themselves.

Increasing attention has therefore been directed towards physical gamification, which integrates game mechanics with purposeful movement, collaborative interaction, and authentic communicative tasks within face to face learning environments. Unlike digital gamification, physical gamification encourages learners to communicate while moving, solving problems collectively, and responding to contextual learning challenges. Such experiences are closely aligned with Embodied Cognition Theory, which proposes that learning is shaped through the interaction of cognitive processes with bodily actions and environmental experiences (Wilson, 2002; Barsalou, 2008). From a language learning perspective, physically engaging activities provide opportunities for learners to construct meaning through movement, interaction, and shared participation rather than through passive reception of information. A recent systematic review by Jusslin et al. (2022) further highlights the growing evidence supporting embodied language learning, while also identifying the need for additional empirical research in authentic educational settings, particularly beyond early childhood and primary education.

To address this gap, the present study investigates Sound Expedition, a physically gamified English language learning intervention designed to promote meaningful learning through purposeful movement, collaborative problem solving, vocabulary retrieval, listening tasks, and authentic spoken interaction. Conducted through a series of station-based challenges, the intervention encourages learners to communicate, negotiate meaning, and work collaboratively while completing physically engaging tasks. Rather than positioning physical activity as an end, Sound Expedition integrates movement as a pedagogical mechanism for supporting communicative language learning within a gamified environment.

Accordingly, this study explores the potential of Sound Expedition to facilitate meaningful English language learning in higher education through a convergent mixed-methods design. Specifically, the study examines changes in learners' self-perceived listening and speaking confidence alongside their perceptions and experiences of participating in the intervention. By integrating quantitative and qualitative evidence, the study contributes to the emerging literature on physical gamification by demonstrating how purposeful movement, authentic communication, and collaborative interaction can enrich English language learning beyond predominantly digital approaches. The findings are expected to provide theoretical insights into physically gamified language learning while offering practical guidance for educators seeking to design engaging and meaningful English language learning experiences in higher education.

Research Questions

To what extent does participation in Sound Expedition influence learners' self-perceived listening and speaking confidence?

How do learners perceive Sound Expedition as a physically gamified English language learning intervention?

How do learners experience participation in Sound Expedition as a physically gamified English language learning intervention?

LITERATURE REVIEW

Meaningful English Language Learning

Meaningful English language learning extends beyond the acquisition of vocabulary and grammatical knowledge to encompass learners' ability to communicate effectively in authentic social and academic contexts. Contemporary language education therefore places increasing emphasis on developing communicative competence, whereby learners use language purposefully to interpret meaning, express ideas, negotiate understanding, and participate confidently in real-world interactions. This perspective reflects a shift from teacher-centred transmission of linguistic knowledge towards learner-centred approaches that position communication as both the process and the outcome of language learning (Canale & Swain, 1980; Richards, 2006).

The concept of communicative competence introduced by Canale and Swain (1980) provides a foundational framework for understanding meaningful language learning. Rather than viewing language proficiency solely as mastery of grammatical rules, communicative competence encompasses grammatical, sociolinguistic, discourse, and strategic competencies that enable learners to use language appropriately across diverse communicative situations. Building upon this perspective, Communicative Language Teaching (CLT) advocates learning environments in which learners actively engage in meaningful interaction, collaborative problem solving, and authentic language use instead of relying primarily on memorisation or repetitive language drills (Richards, 2006; Richards & Rodgers, 2014). Within CLT, communication is not merely the objective of instruction but also the principal means through which language is learned.

Task-based language teaching further operationalises these principles by engaging learners in purposeful activities that require the use of language to accomplish meaningful goals. Rather than focusing exclusively on linguistic accuracy, task-based learning encourages learners to interpret information, negotiate meaning, and collaborate with others while completing authentic communicative tasks (Nunan, 2004). Such activities create opportunities for learners to apply language in context, thereby promoting deeper cognitive processing and more meaningful learning experiences. This learner-centred orientation recognises that language development is enhanced when learners actively construct meaning through participation rather than passively receive linguistic knowledge.

Within higher education, these principles are particularly relevant to the development of listening and speaking skills, which require learners to process spoken input, respond appropriately, and participate confidently in communicative exchanges. Richards (2008) emphasises that effective listening and speaking instruction should provide learners with authentic opportunities to interact, negotiate meaning, and engage in purposeful communication that mirrors real-life language use. Consequently, instructional approaches that promote collaboration, interaction, and meaningful participation are more likely to facilitate communicative competence than approaches that emphasise isolated language practice.

These pedagogical developments have encouraged educators to explore innovative instructional approaches capable of increasing learner engagement while preserving authentic communication as the central focus of

language learning. Among these approaches, gamification has attracted growing attention for its potential to transform conventional classroom activities into engaging learning experiences that encourage active participation, collaboration, and purposeful language use. Rather than viewing games solely as sources of entertainment, contemporary educational research increasingly recognises gamification as a pedagogical strategy that can support meaningful English language learning when thoughtfully integrated with communicative learning objectives. This emerging perspective provides the foundation for examining the role of gamification in English language education.

Gamification in English Language Learning

The increasing emphasis on learner-centred instruction has encouraged educators to explore pedagogical approaches that enhance learners' active participation while preserving meaningful language learning as the primary educational objective. Within this context, gamification has emerged as a prominent instructional strategy that incorporates selected game design elements into non-game learning environments to encourage engagement, motivation, and sustained participation without transforming learning into a complete game (Deterding et al., 2011). Rather than replacing educational objectives with entertainment, gamification seeks to enrich learning experiences by integrating elements such as challenges, immediate feedback, collaboration, rewards, and progressive task completion into instructional activities (Kapp, 2012). When aligned with sound pedagogical principles, these elements can encourage learners to participate more actively while maintaining meaningful learning outcomes.

The educational value of gamification extends beyond increasing learners' enjoyment of classroom activities. A comprehensive review by Hamari et al. (2014) found that gamification generally produces positive outcomes in learning environments by enhancing learner engagement, motivation, and participation, although the magnitude of these benefits varies according to instructional design and contextual implementation. Similarly, a recent systematic review by Chan and Lo (2024) concluded that gamification can positively influence English language learning by promoting learners' motivation, participation, language proficiency, and positive attitudes towards learning. Collectively, these findings suggest that gamification has considerable potential to create learning environments in which learners participate more actively and confidently in meaningful language learning activities.

Despite these encouraging findings, the effectiveness of gamification cannot be attributed solely to the inclusion of game elements. Dichev and Dicheva (2017) argue that successful gamification depends fundamentally on how game mechanics are integrated with clear pedagogical objectives, meaningful learning tasks, and appropriate instructional design. Simply adding points, badges, or competitive elements does not necessarily enhance learning if these features are disconnected from authentic educational purposes. This perspective shifts attention from gamification as a collection of game elements towards gamification as a pedagogically informed instructional approach that supports meaningful learning through purposeful learner engagement.

Within English language education, however, research has focused predominantly on digital gamification, where learning activities are delivered through online platforms, mobile applications, and learning management systems. A systematic review by Laura-De La Cruz et al. (2023) reported that most gamification studies in higher education have examined digitally mediated learning environments designed to increase learner motivation and engagement. Similarly, Chan and Lo (2024) observed that contemporary research has concentrated largely on digital technologies, with comparatively limited empirical attention devoted to physically interactive learning environments that encourage face-to-face communication and collaborative language use. While digital gamification has demonstrated considerable educational value, these findings suggest that the broader pedagogical potential of gamification may not yet be fully understood.

The predominance of digital approaches highlights an important gap in the current literature. Language learning is inherently social, communicative, and interactive, requiring learners to negotiate meaning, respond to spoken

language, and collaborate with others in authentic contexts. Consequently, learning environments that integrate physical movement, collaborative interaction, and purposeful communication may offer educational opportunities that extend beyond those typically associated with screen-based gamified activities. Investigating such approaches is therefore important for broadening current understandings of how gamification can support meaningful English language learning. This provides the rationale for examining physical gamification, which integrates game mechanics with movement-based participation and authentic communicative interaction within face-to-face learning environments.

Physical Gamification in English Language Learning

The predominance of digital gamification has prompted increasing interest in instructional approaches that integrate game mechanics with learners' physical participation in face-to-face learning environments. While digital technologies remain valuable for supporting language learning, they cannot fully replicate the spontaneous communication, collaborative interaction, and contextual problem solving that naturally occur when learners engage physically with one another during classroom activities. As a result, educators have begun to explore forms of gamification that extend beyond screen-based environments by incorporating purposeful movement, teamwork, and authentic communicative tasks into the learning process.

Physical gamification refers to the integration of game design elements within learning activities that require learners to participate actively through movement, collaboration, and face-to-face interaction while pursuing meaningful educational objectives. Unlike digital gamification, where game elements are mediated primarily through technological platforms, physical gamification situates learners within shared learning environments in which communication, physical participation, and collaborative problem solving become integral components of the learning experience. Game mechanics such as missions, timed challenges, station-based activities, and team-based tasks are embedded within authentic educational contexts, encouraging learners to use language purposefully while engaging physically with their peers.

Within English language education, physical gamification offers particular advantages because language learning is inherently communicative and socially situated. Listening and speaking skills are developed not only through exposure to language but also through opportunities to negotiate meaning, respond to spoken input, provide explanations, ask questions, and collaborate in solving authentic problems. By integrating these communicative processes with movement-based learning activities, physical gamification creates learning environments in which language is used as a functional tool for achieving shared goals rather than as an isolated subject of study. Such experiences align closely with the communicative orientation of English language teaching by positioning learners as active participants who construct meaning through interaction and purposeful language use.

Despite these pedagogical advantages, research examining physical gamification in English language learning remains comparatively limited. Recent systematic reviews indicate that the majority of gamification studies continue to focus on digitally mediated interventions, with relatively little empirical attention devoted to movement-based and physically interactive learning environments, particularly within higher education (Laura-De La Cruz et al., 2023; Chan & Lo, 2024). Consequently, the educational potential of integrating physical activity, collaborative interaction, and game-based learning within English language education has yet to be fully understood.

In response to this gap, the present study investigates Sound Expedition, a physically gamified English language learning intervention designed to promote meaningful learning through purposeful movement, collaborative problem solving, listening activities, vocabulary retrieval, and authentic spoken communication. Conducted through a sequence of station-based challenges, the intervention encourages learners to communicate, negotiate meaning, and work collaboratively while completing physically engaging tasks. Rather than employing physical activity as an end in itself, Sound Expedition positions movement as a pedagogical resource that supports meaningful communication and active participation within a gamified English language learning environment.

Theoretical Foundations of Physical Gamification

The pedagogical principles underpinning physical gamification can be understood through two complementary theoretical perspectives: Embodied Cognition Theory and Social Constructivism. Together, these theories explain how purposeful movement and collaborative interaction contribute to meaningful English language learning. While Embodied Cognition Theory emphasises the relationship between bodily experience and cognitive processes, Social Constructivism highlights the importance of social interaction and collaborative meaning-making in language learning. Collectively, these perspectives provide a theoretical foundation for understanding how physically gamified learning environments support authentic communication and learner engagement.

Embodied Cognition Theory

Embodied Cognition Theory proposes that cognitive processes are fundamentally shaped by the dynamic interaction between the mind, the body, and the surrounding environment. Rather than viewing learning as an exclusively mental activity, the theory argues that knowledge is constructed through learners' physical actions, sensory experiences, and engagement with meaningful contexts (Wilson, 2002). From this perspective, bodily movement is not merely an accompanying feature of learning but an integral component of cognitive processing that influences how information is perceived, understood, and retained.

This perspective has important implications for language learning. Unlike traditional instructional approaches that often position learners as passive recipients of linguistic knowledge, Embodied Cognition Theory suggests that language learning becomes more meaningful when learners actively interact with their environment while using the target language. Physical actions, gestures, movement, and contextual engagement provide additional cognitive cues that facilitate comprehension, vocabulary retrieval, and language production by linking linguistic information with concrete experiences (Barsalou, 2008). Consequently, learning experiences that integrate physical participation with purposeful communication may promote deeper cognitive processing than activities that rely primarily on passive listening or memorisation.

Empirical evidence increasingly supports the educational value of embodied learning in language education. Macedonia (2014) demonstrated that incorporating bodily movement and gestures into language instruction enhances vocabulary learning by strengthening learners' memory and facilitating word retrieval. Building on these findings, Jusslin et al. (2022) synthesised evidence from a broad range of language-learning contexts. They concluded that embodied learning promotes learner engagement, supports language acquisition, and enriches communicative learning experiences through active interaction with learning tasks and environments. The review further highlights that movement-based learning should not be viewed simply as physical activity but as a pedagogical approach that integrates bodily engagement with meaningful language use.

Within the present study, Embodied Cognition Theory provides the cognitive rationale for the design of Sound Expedition. The intervention incorporates purposeful movement within station-based communicative tasks that require learners to listen, retrieve vocabulary, negotiate meaning, and collaborate while moving through successive learning activities. Rather than functioning as an additional motivational feature, movement is intentionally integrated into the learning process to support active cognitive engagement and meaningful language use. This perspective underpins the assumption that physically engaging learning environments can facilitate richer English language learning experiences by linking language use with authentic actions and contextual participation.

Social Constructivism

Whereas Embodied Cognition Theory explains how bodily engagement supports learning at the individual cognitive level, Social Constructivism provides a complementary perspective by explaining how knowledge is constructed through social interaction, collaboration, and shared participation. Rooted in the work of Vygotsky

(1978), Social Constructivism proposes that learning is fundamentally a social process in which individuals develop knowledge through meaningful interaction with others rather than through isolated learning experiences. Language serves not only as the object of learning but also as the primary medium through which learners exchange ideas, negotiate meaning, solve problems, and co-construct understanding.

Within second-language education, Social Constructivism has significantly influenced communicative approaches that position interaction as a central mechanism for language development. Lantolf (2000) argues that language learning is socially mediated through collaborative dialogue, where learners support one another in constructing meaning and developing communicative competence. From this perspective, meaningful learning occurs when learners participate actively in authentic communicative tasks that encourage cooperation, negotiation, and shared problem solving. These collaborative experiences enable learners to extend their linguistic abilities through interaction with peers while receiving immediate feedback and opportunities for language use in meaningful contexts.

The principles of Social Constructivism align closely with learner-centred pedagogies that emphasise communication as both the process and the outcome of language learning. Rather than treating learners as passive recipients of linguistic knowledge, this perspective views them as active participants who develop understanding through discussion, collaboration, and purposeful engagement with authentic learning tasks. Such learning environments encourage learners to express ideas, negotiate interpretations, clarify misunderstandings, and jointly accomplish communicative goals, thereby creating conditions that support both language development and meaningful learning.

Within the context of the present study, Social Constructivism provides the social rationale for the design of Sound Expedition. Throughout the intervention, learners work collaboratively to complete station-based challenges that require them to interpret spoken instructions, retrieve vocabulary, negotiate solutions, and communicate effectively with their teammates. These activities create opportunities for learners to construct meaning collectively while using English as a functional tool for collaboration rather than as an isolated academic subject. Consequently, learning emerges through the combined processes of communication, cooperation, and shared problem solving, reflecting the fundamental principles of Social Constructivism.

Taken together, Embodied Cognition Theory and Social Constructivism provide complementary theoretical perspectives that underpin the design of Sound Expedition. While Embodied Cognition Theory explains how purposeful movement and physical engagement support cognitive processing during language learning, Social Constructivism explains how collaborative interaction and shared communication facilitate the co-construction of knowledge. Integrating these perspectives provides a comprehensive theoretical foundation for understanding how physically gamified learning environments can promote meaningful English language learning through the simultaneous engagement of learners' cognitive, physical, and social experiences.

Conceptual Framework

The conceptual framework for this study is developed by integrating the pedagogical principles of Communicative Language Teaching, the instructional affordances of physical gamification, and the complementary perspectives of Embodied Cognition Theory and Social Constructivism. Collectively, these perspectives propose that meaningful English language learning is facilitated when learners participate actively in authentic communicative tasks that require purposeful movement, collaborative interaction, and contextual language use. Rather than functioning as independent components, these pedagogical and theoretical perspectives operate together to explain how physically gamified learning environments can support meaningful language learning experiences.

Within this framework, physical gamification represents the primary instructional approach that shapes learners' participation throughout Sound Expedition. The intervention integrates game mechanics, including station-based

challenges, collaborative missions, time-constrained activities, listening tasks, vocabulary retrieval, and team-based problem solving, within a physically engaging learning environment. These features are intentionally designed to encourage learners to communicate, negotiate meaning, respond to spoken instructions, and collaborate while actively participating in successive learning tasks. Consequently, movement is incorporated not as an additional activity but as an instructional resource that supports purposeful communication and learner engagement.

The framework further proposes that participation in these physically interactive learning experiences promotes meaningful engagement with English through the combined influence of cognitive, physical, and social processes. Embodied Cognition Theory explains how purposeful movement and bodily engagement facilitate learners' cognitive processing during language learning, while Social Constructivism explains how collaborative interaction enables learners to construct knowledge through communication and shared problem solving. Together, these complementary perspectives suggest that meaningful learning emerges when learners actively participate in authentic communicative experiences that integrate movement with collaborative language use.

Accordingly, the framework proposes that engagement in Sound Expedition may contribute to positive English language learning experiences by creating authentic opportunities for learners to use listening and speaking skills while interacting purposefully with their peers. These learning experiences are expected to support learners' self-perceived listening and speaking confidence while fostering meaningful engagement with English language learning. The conceptual relationships that guide the present study are illustrated in Figure 1.

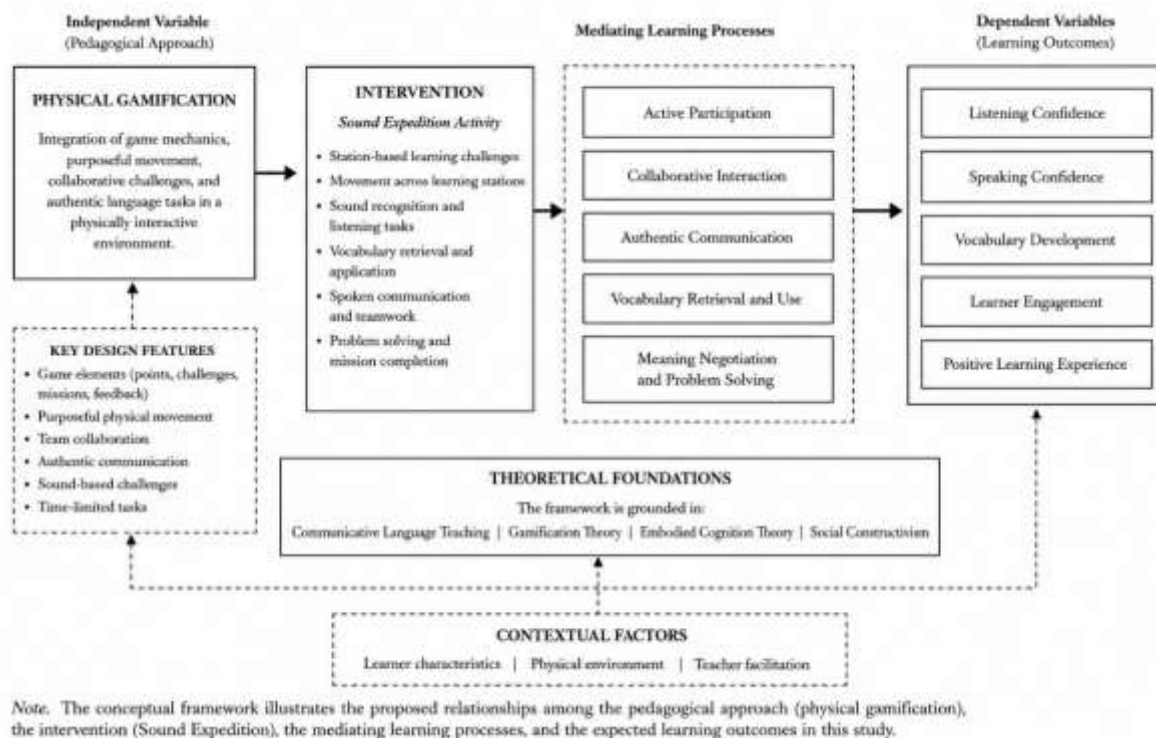


Figure 1 Conceptual Framework of Sound Expedition as a Physically Gamified English Language Learning Activity

METHODOLOGY

Research Design

This study employed a convergent mixed methods design to investigate the potential of Sound Expedition as a physically gamified English language learning intervention. A mixed methods approach was considered

appropriate because the study sought to examine both measurable changes in learners' self perceived listening and speaking confidence and the qualitative experiences underlying their participation in the intervention. Integrating quantitative and qualitative evidence enabled a more comprehensive understanding of the educational potential of Sound Expedition than either approach could provide independently.

A convergent design involves the concurrent collection and separate analysis of quantitative and qualitative data, followed by the integration of findings during interpretation (Creswell & Plano Clark, 2018). In the present study, quantitative data were obtained through matched pre intervention and post intervention self assessment questionnaires, while qualitative data were collected through learners' written reflections following the completion of the intervention. The quantitative findings provided evidence of changes in learners' self perceived confidence, whereas the qualitative findings offered richer insights into how learners experienced the physically gamified activities and the aspects they perceived as contributing to their learning.

The selection of a convergent mixed methods design was closely aligned with the research questions. The first research question required quantitative analysis to examine changes in learners' self perceived listening and speaking confidence following participation in Sound Expedition. The second research question required qualitative exploration of learners' perceptions and experiences, enabling a deeper understanding of how the intervention supported meaningful English language learning. Integrating these complementary forms of evidence strengthened the overall interpretation of the findings by allowing the quantitative results to be understood alongside learners' own accounts of their experiences.

Overall, the convergent mixed methods design provided a rigorous framework for evaluating both the measurable outcomes and the educational processes associated with Sound Expedition. This approach is particularly appropriate for educational intervention studies because it recognises that the effectiveness of innovative pedagogical practices cannot be fully understood through quantitative measures alone but also requires consideration of learners' experiences, engagement, and perceptions within authentic learning environments (Creswell & Plano Clark, 2018).

Research Context

The study was conducted at Universiti Malaysia Terengganu (UMT), a public university in Malaysia where English is taught as a second language to support students' academic and professional communication. The intervention was implemented as part of an English language learning programme designed to provide learners with opportunities to develop listening and speaking skills through authentic, learner-centred activities beyond conventional classroom instruction.

The intervention, Sound Expedition, was developed as a physically gamified English language learning activity that integrated communicative tasks, purposeful movement, collaborative problem solving, and vocabulary retrieval within a station-based learning environment. Learners completed a sequence of team-based challenges requiring them to interpret spoken instructions, communicate with teammates, retrieve target vocabulary, and solve contextual language tasks while moving between activity stations. The intervention was intentionally designed to operationalise the pedagogical principles presented in the conceptual framework by integrating Communicative Language Teaching with physical gamification within an authentic learning context.

The implementation of Sound Expedition within the university setting provided an appropriate context for examining the educational potential of physical gamification in higher education. Unlike many gamified language learning interventions that rely primarily on digital platforms, Sound Expedition encouraged learners to communicate face-to-face while engaging in physically interactive learning tasks. This authentic learning environment enabled the study to investigate both learners' self-perceived listening and speaking confidence and their experiences of participating in a physically gamified English language learning intervention.

Participants

The participants comprised undergraduate students enrolled at Universiti Malaysia Terengganu (UMT) who voluntarily participated in the Sound Expedition English language learning programme. The participants represented learners studying English as a second language within the Malaysian higher education context and were considered appropriate for investigating the educational potential of a physically gamified intervention designed to support listening and speaking development.

A purposive sampling strategy was employed to recruit participants who met the objectives of the study. Purposive sampling is appropriate when participants are intentionally selected because they possess characteristics relevant to the research questions and are able to provide meaningful information about the phenomenon under investigation. In the present study, participants were selected because they were actively involved in the Sound Expedition intervention and completed both the quantitative and qualitative components of the study. This enabled the researchers to examine changes in learners' self perceived listening and speaking confidence while simultaneously exploring their experiences of participating in the physically gamified activities.

Participation in the study was entirely voluntary. Prior to the intervention, participants were informed about the purpose of the research, the procedures involved, and their right to withdraw from the study at any stage without penalty. Only learners who provided informed consent and completed both the pre intervention and post intervention questionnaires were included in the quantitative analysis. Similarly, learners who submitted post intervention reflective responses were included in the qualitative analysis. This ensured that both datasets were derived from participants who had experienced the complete intervention, thereby supporting the credibility and consistency of the findings.

The final sample consisted of 12 undergraduate students, comprising all females, with ages ranging from 19 - 25 years. These participants represented diverse academic programmes across the university, reflecting the heterogeneous nature of undergraduate English language learners in Malaysian higher education. Although the sample size was relatively modest, it was appropriate for an exploratory intervention study employing a convergent mixed methods design, in which quantitative findings were interpreted alongside rich qualitative evidence to provide a comprehensive understanding of learners' experiences.

The demographic profile of the matched participants included in the quantitative analysis is presented in Table 1.

Table 1 Demographic Profile of Participants Included in the Quantitative Analysis (N = 12)

Characteristic	Category	Frequency (n)	Percentage (%)
Age	Below 20	1	8.3
	20–22	9	75.0
	23–25	2	16.7
Academic Discipline	Applied Sciences	9	75.0
	Computing and Data Science	3	25.0
Year of Study	Year 1	6	50.0
	Year 2	4	33.3

	Year 3	2	16.7
Self-perceived English proficiency	Beginner	1	8.3
	Intermediate	6	50.0
	Advanced	5	41.7

Participation in the study was voluntary. Prior to data collection, participants were informed of the purpose of the study and assured that their responses would remain confidential and would be used solely for research purposes. Informed consent was obtained from all participants, and all identifying information was removed before data analysis to ensure participant anonymity.

The Sound Expedition Intervention

The intervention employed in this study was Sound Expedition, a physically gamified English language learning activity developed to promote meaningful learning through purposeful movement, authentic communication, collaborative interaction, and active learner participation. The intervention was designed in accordance with the conceptual framework presented in Figure 1 by integrating the pedagogical principles of Communicative Language Teaching with the instructional affordances of physical gamification. Consistent with the complementary perspectives of Embodied Cognition Theory and Social Constructivism, the intervention encouraged learners to construct meaning through the combined processes of physical engagement, collaborative problem solving, and authentic language use.

Sound Expedition was implemented as a station-based learning activity comprising five sequential challenges. Learners worked in small groups and progressed through each station by completing communicative tasks within a predetermined time limit. Throughout the intervention, English served as the primary medium of communication as learners interpreted spoken instructions, discussed possible solutions, retrieved vocabulary, negotiated meaning, and collaborated to accomplish shared learning goals. Rather than emphasising competition alone, the gamified activities were designed to encourage meaningful participation and sustained interaction among group members.

Each station targeted complementary aspects of English language learning while maintaining a consistent emphasis on listening and speaking. The activities required learners to identify sounds, interpret verbal clues, recall vocabulary, communicate ideas, and respond collaboratively to contextual challenges. Purposeful movement between stations was incorporated to create dynamic learning experiences that encouraged learners to engage cognitively, physically, and socially throughout the intervention. Consequently, physical activity functioned as an integral instructional component that supported authentic communication rather than serving merely as an energising classroom activity.

The intervention was completed during a single learning session lasting approximately 1 and a half hours. Facilitators were assigned to each station to provide instructions, monitor learners' progress, manage time, and ensure the consistent implementation of the activities. To maintain procedural consistency, all groups completed the same sequence of stations using identical task instructions, materials, and time allocations. This standardisation helped ensure that differences in learners' experiences were attributable primarily to their engagement with the intervention rather than variations in implementation.

A summary of the instructional focus and physical gamification elements incorporated into each station is presented in Table 2.

Table 2 Overview of the Sound Expedition Intervention

Station	Language Focus	Learning Task	Physical Gamification Elements
Station 1: The Sound Detective	Listening, vocabulary recognition	Participants listened to environmental and everyday sounds, identified the corresponding vocabulary, and completed sound recognition challenges collaboratively.	Team movement, sound-based missions, collaborative decision making
Station 2: The Action Arena	Speaking, vocabulary retrieval	Participants acted out target vocabulary while teammates identified the correct words and used them appropriately.	Charades, teamwork, movement, timed challenge
Station 3: The Whisper Circle	Listening, speaking, communication	Participants completed a whisper chain activity in which spoken vocabulary and messages were communicated sequentially among teammates before identifying the correct answer.	Sequential collaboration, active listening, communication under time constraints
Station 4: The Doodle Decoder	Speaking, vocabulary application	Participants interpreted visual clues, constructed sentences using target vocabulary, and communicated their responses to teammates.	Collaborative problem solving, movement, vocabulary production, timed missions

Research Instruments

Two complementary research instruments were employed to address the objectives of the study: a self-assessment questionnaire and a post-intervention reflective response form. Consistent with the convergent mixed methods design, the questionnaire generated quantitative data to examine changes in learners' self-perceived listening and

speaking confidence, while the reflective responses provided qualitative insights into learners' experiences of participating in the Sound Expedition intervention. The use of these complementary instruments enabled the study to investigate both the measurable outcomes and the educational processes associated with the physically gamified learning activity.

Self-Assessment Questionnaire

The quantitative instrument consisted of a matched pre-intervention and post-intervention self-assessment questionnaire designed to measure learners' self-perceived confidence in listening and speaking English. The questionnaire comprised three constructs: listening confidence, speaking confidence, and overall English language confidence. Each construct was measured using multiple statements rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with higher scores indicating greater perceived confidence.

The questionnaire was developed to align directly with the first research question, which examined the extent to which participation in Sound Expedition influenced learners' self-perceived listening and speaking confidence. Administering the same instrument before and after the intervention enabled the researchers to compare matched responses and identify changes in participants' confidence following their engagement in the physically gamified activities.

Prior to implementation, the questionnaire was reviewed to ensure the clarity and appropriateness of the items for the target participants. Internal consistency was subsequently evaluated using Cronbach's alpha, and the reliability coefficients indicated acceptable levels of internal consistency for the constructs included in the instrument. The reliability statistics are presented in Table 3

Table 3 Internal Consistency Reliability of the Self-Assessment Questionnaire

Construct	Number of Items	Cronbach's Alpha (α)	Interpretation
Listening Confidence	n	α	Excellent / Good / Acceptable
Speaking Confidence	n	α	Excellent / Good / Acceptable
Overall English Language Confidence	n	α	Excellent / Good / Acceptable

Reflective Response Form

To complement the quantitative findings, qualitative data were collected through a post-intervention reflective response form administered immediately after learners completed the Sound Expedition activities. The reflection invited participants to describe their learning experiences, perceptions of the activities, and aspects of the intervention that they believed supported or influenced their English language learning.

Open-ended reflection was selected because it enabled learners to express their experiences in their own words without being constrained by predetermined response categories. This approach generated rich qualitative data concerning learners' engagement, collaborative interaction, communication, and perceptions of physically gamified learning experiences. The reflective responses therefore provided important contextual information that

could not be captured through quantitative measures alone and directly addressed the second research question concerning learners' perceptions and experiences of participating in Sound Expedition.

Using both instruments within the same study enabled quantitative findings concerning learners' self-perceived confidence to be interpreted alongside qualitative evidence describing how participants experienced the intervention. This complementary approach strengthened the overall interpretation of the findings by providing a more comprehensive understanding of the educational potential of physical gamification in English language learning.

Data Collection Procedure

Data collection was conducted during the implementation of the Sound Expedition intervention at a public university in Malaysia. Prior to the commencement of the activity, participants were briefed on the objectives of the study, the voluntary nature of their participation, and the confidentiality of their responses. Written informed consent was obtained from all participants before data collection began.

The data collection process consisted of four sequential stages. In the first stage, participants completed the pre-intervention questionnaire, which collected demographic information, self-perceived English proficiency, and baseline measures of listening and speaking confidence. The questionnaire was administered immediately before the intervention to establish participants' initial perceptions of their English language abilities.

In the second stage, participants took part in the Sound Expedition intervention. Working in small groups, they rotated through four physically gamified learning stations designed to promote listening, speaking, vocabulary development, and collaborative problem solving. Each station presented a different language related challenge that required participants to communicate, negotiate meaning, and complete tasks within a specified time limit while moving between stations.

Immediately after completing the intervention, participants completed the post-intervention questionnaire. The questionnaire contained the same ten self-assessment items administered during the pre-intervention phase to facilitate direct comparisons of participants' perceived listening and speaking confidence before and after the intervention. In addition, five perception items were included to evaluate participants' overall experiences of Sound Expedition.

Finally, participants completed six open-ended reflection questions that explored their learning experiences, perceived benefits, challenges encountered during the intervention, suggestions for future improvement, and their preferred learning stations. Collecting both quantitative and qualitative data immediately after the intervention enabled participants to reflect on their experiences while the learning activities remained fresh in their memory, thereby providing richer insights into the implementation of the physically gamified English language learning intervention.

Data Analysis

The quantitative and qualitative data were analysed separately before being integrated during the interpretation stage, consistent with the principles of a convergent mixed-methods design (Creswell & Plano Clark, 2018).

To address the first research question, matched pre-intervention and post-intervention questionnaire data were analysed using IBM SPSS Statistics. Descriptive statistics (means and standard deviations) were computed, followed by paired sample *t* tests to examine changes in learners' self-perceived listening, speaking, and overall English language confidence. Cohen's *d* was calculated to determine the magnitude of the observed changes.

To address the second research question, descriptive statistics were computed for the post-intervention perception questionnaire. Means and standard deviations were used to summarise learners' perceptions of Sound Expedition as a physically gamified English language learning intervention.

To address the third research question, learners' reflective responses were analysed using reflexive thematic analysis following Braun and Clarke (2006). The responses were read repeatedly, coded, and organised into themes that represented recurring patterns across participants' experiences.

Finally, the quantitative and qualitative findings were integrated during the interpretation stage to identify areas of convergence and complementarity, providing a comprehensive understanding of the educational potential of Sound Expedition (Creswell & Plano Clark, 2018).

Quantitative Data Analysis

The quantitative data were analysed using descriptive and inferential statistics. Prior to the analysis, participants' pre-intervention and post-intervention responses were matched using participant names to ensure that only complete paired responses were included in the analysis. Consequently, the quantitative analysis was based on the matched responses of 12 participants.

Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed to summarise participants' demographic characteristics and self-perceived listening and speaking confidence. Composite mean scores were subsequently calculated for the listening and speaking constructs by averaging the responses to the respective questionnaire items. An overall confidence score was also computed to provide an overall measure of participants perceived English language confidence.

The internal consistency reliability of the listening, speaking, and perception scales was assessed using Cronbach's alpha. Changes in participants' self-perceived listening confidence, speaking confidence, and overall confidence before and after participating in Sound Expedition were analysed using paired sample *t-tests*. This statistical procedure was selected because it enables comparisons between two related sets of observations obtained from the same participants before and after an intervention. In addition to statistical significance, Cohen's *d* was calculated to determine the magnitude of the observed changes and to provide an estimate of the practical significance of the intervention.

Qualitative Data Analysis

The qualitative data obtained from the open-ended reflection questions were analysed using thematic analysis following the six-phase framework proposed by Braun and Clarke (2006). The analysis began with repeated reading of the participants' responses to achieve familiarity with the data. Initial codes were then generated by identifying meaningful segments related to learners' experiences, perceptions, and responses to the intervention. Similar codes were subsequently grouped into broader categories, which were reviewed, refined, and organised into overarching themes that represented recurring patterns across participants' reflections.

The qualitative findings were used to complement and explain the quantitative results by providing deeper insights into participants' learning experiences, perceived benefits of the intervention, challenges encountered during the activities, and suggestions for future improvement. Integrating both forms of data enabled a richer interpretation of the educational value of Sound Expedition as a physically gamified English language learning intervention.

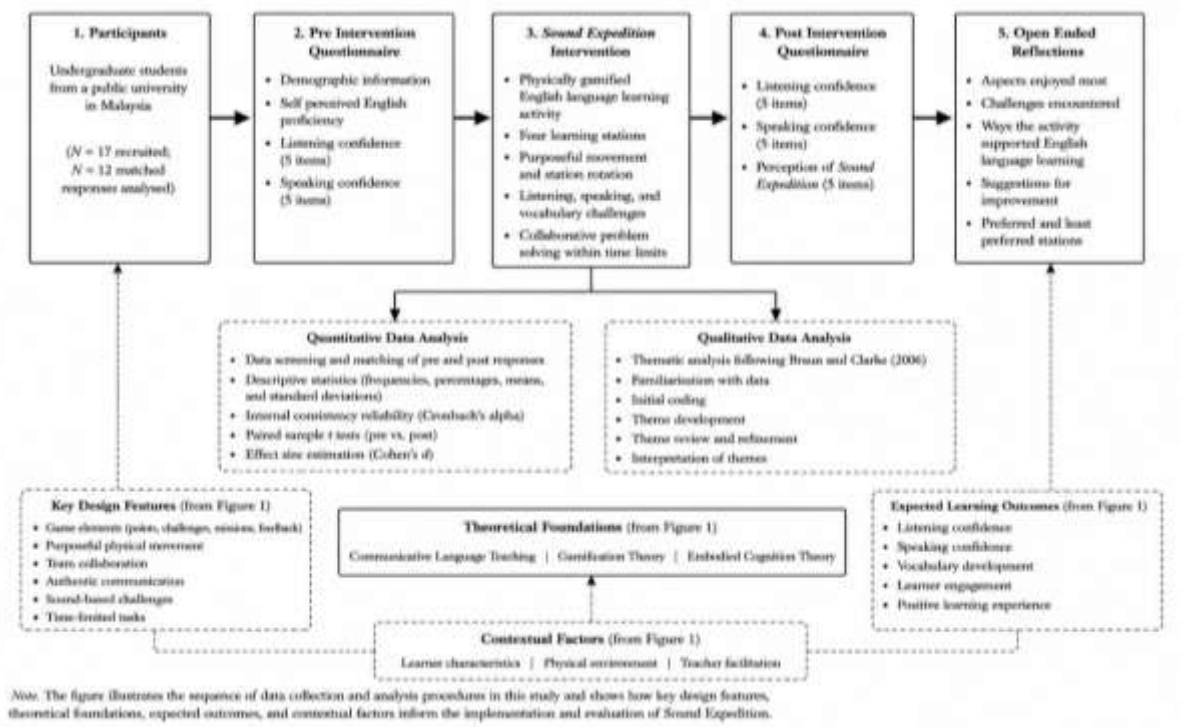


Figure 2 Research Procedure of the Study

Figure 2 illustrates the sequence of the research process, beginning with participant recruitment and the pre-intervention questionnaire, followed by the implementation of the Sound Expedition intervention, post-intervention data collection, qualitative reflections, separate quantitative and qualitative analyses, and the integration of findings.

FINDINGS AND DISCUSSION

Influence of Sound Expedition on Learners' Self-Perceived Listening and Speaking Confidence

The first objective of this study was to examine whether participation in Sound Expedition influenced learners' self-perceived listening and speaking confidence. Descriptive statistics were computed to compare participants' confidence levels before and after the intervention, followed by paired sample t tests to determine whether the observed differences were statistically significant. The descriptive statistics are presented in Table 4.

Table 4 Descriptive Statistics for Learners' Self-Perceived Listening, Speaking, and Overall English Language Confidence Before and After Participating in Sound Expedition (N = 12)

Variable	Pretest Mean	SD	Posttest Mean	SD
Listening confidence	2.95	0.76	2.95	0.77
Speaking confidence	2.72	0.67	2.95	0.73
Overall English language confidence	2.83	0.69	2.95	0.74

As shown in Table 2, participants reported moderate to relatively high levels of self-perceived listening and speaking confidence before participating in Sound Expedition. Following the intervention, listening confidence remained stable, whereas modest increases were observed in speaking confidence and overall English language confidence. Although the magnitude of these changes was relatively small, the descriptive findings suggest a positive trend in learners' perceived confidence after participating in the physically gamified English language learning intervention.

To determine whether the observed differences between the pre-intervention and post-intervention scores were statistically significant, paired sample *t*-tests were conducted. The results are presented in Table 3.

Table 3 Paired Sample *t* Test Results for Learners' Self-Perceived Confidence (N = 12)

Variable	Mean Difference	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Listening confidence	0.00	0.00	1.000	0.00
Speaking confidence	0.23	1.58	.142	0.46
Overall English language confidence	0.12	0.99	.341	0.29

The paired sample *t* test showed that learners' self-perceived speaking confidence and overall English language confidence increased following participation in Sound Expedition, whereas listening confidence remained stable. However, these observed improvements did not reach statistical significance ($p > .05$). As shown in Table 3, the effect size for listening confidence was negligible, while overall English language confidence demonstrated a small effect. More importantly, the effect size for speaking confidence ($d = 0.46$) approached the moderate range, suggesting that participation in Sound Expedition may have had a meaningful educational influence on learners' perceived speaking confidence despite the absence of statistical significance. This finding should be interpreted cautiously given the small sample size; nevertheless, it indicates that the intervention may have contributed to positive changes that were not fully captured by significance testing alone. Collectively, these findings suggest that participation in Sound Expedition was associated with modest improvements in learners' self-perceived confidence following the intervention.

A plausible explanation for the modest quantitative changes is that participants entered the intervention with moderate to relatively high levels of self-perceived confidence. In educational research, when learners begin with comparatively high baseline scores, the potential for measurable improvement becomes constrained, a phenomenon commonly referred to as the ceiling effect. Under such circumstances, short-duration interventions may produce meaningful learning experiences without generating substantial shifts in self-report confidence measures. Therefore, the absence of statistically significant differences in the present study should not be interpreted as evidence that the intervention lacked educational value, but rather as a reflection of the limited opportunity for measurable improvement within a relatively confident group of learners.

Another consideration relates to the nature of the intervention itself. Sound Expedition was designed as a physically gamified English language learning intervention that integrated purposeful movement, collaborative problem solving, and authentic communication rather than intensive language instruction aimed at producing immediate improvements in language proficiency. Throughout the intervention, participants listened to spoken cues, negotiated meaning with teammates, retrieved vocabulary, and completed language-related tasks while

moving between learning stations. These learning experiences reflect the principles of embodied language learning, which posit that language development is facilitated through active interaction with the physical and social environment rather than through passive exposure alone (Wilson, 2002; Jusslin et al., 2022). Consequently, the educational value of Sound Expedition may be better understood in terms of creating authentic opportunities for learners to use English meaningfully through participation, collaboration, and purposeful physical engagement than through producing immediate gains in self-perceived confidence following a single intervention session.

Taken together, these findings suggest that the contribution of Sound Expedition extends beyond measurable changes in learners' self-perceived confidence. While the quantitative findings indicate only modest improvements following a single intervention, they also highlight the importance of examining learners' experiences alongside statistical outcomes. The following sections therefore explore participants' perceptions and reflections to provide a richer understanding of how physical gamification supported English language learning through authentic communication, collaboration, and purposeful physical engagement.

Learners' Perceptions of Sound Expedition as a Physically Gamified English Language Learning Intervention

While the quantitative findings revealed only modest changes in learners' self-perceived listening and speaking confidence, participants expressed highly positive perceptions of Sound Expedition as a physically gamified English language learning intervention. Table 4 presents the descriptive statistics for the five perception items administered immediately after the intervention.

Table 4 Learners' Perceptions of Sound Expedition as a Physically Gamified English Language Learning Intervention (N = 12)

Perception Item	Mean	SD	Interpretation
I enjoyed participating in Sound Expedition.	3.75	0.45	High
The activity helped me use English in a fun and meaningful way.	3.75	0.45	High
I felt more confident using English during the game.	3.75	0.45	High
I learned new vocabulary through the activity.	3.83	0.39	High
The stations were engaging and encouraged teamwork.	3.67	0.49	High

Overall, participants reported highly positive perceptions across all five items, with mean scores ranging from 3.67 to 3.83 on a four-point Likert scale. The highest mean score was recorded for the statement "I learned new

vocabulary through the activity" ($M = 3.83$, $SD = 0.39$), indicating that participants consistently perceived Sound Expedition as an effective environment for vocabulary development. Similarly, participants strongly agreed that they enjoyed participating in the intervention, that it enabled them to use English in a fun and meaningful way, and that they felt more confident using English during the activities ($M = 3.75$, $SD = 0.45$ for each item). Although the teamwork item recorded the lowest mean ($M = 3.67$, $SD = 0.49$), the score nevertheless reflected a high level of agreement, suggesting that the collaborative learning stations successfully promoted interaction among participants.

These findings complement the quantitative results presented in the previous section. Although statistically significant improvements in learners' self-perceived confidence were not observed, participants consistently perceived the intervention as enjoyable, meaningful, and beneficial for their English language learning. This pattern suggests that learners' subjective experiences of participation may capture aspects of learning that are not immediately reflected in pretest and posttest confidence measures following a single intervention session.

The findings also reinforce the pedagogical value of physical gamification. Rather than incorporating movement solely to increase enjoyment, Sound Expedition embedded physical activity within authentic language tasks that required learners to communicate, negotiate meaning, retrieve vocabulary, and solve problems collaboratively while moving between learning stations. Consequently, movement functioned as an integral component of language learning rather than as an additional motivational element. This observation aligns with embodied language learning, which proposes that language development is enhanced when learners actively engage with both their physical and social environments (Wilson, 2002; Jusslin et al., 2022).

Particularly noteworthy is the high level of agreement regarding vocabulary learning. Vocabulary development emerged as the strongest perceived outcome of the intervention, suggesting that physically gamified activities may facilitate vocabulary acquisition by situating new words within meaningful communicative contexts. Instead of memorising isolated lexical items, learners encountered vocabulary while listening, speaking, acting, interpreting sounds, and collaborating with peers to accomplish shared tasks. Such experiences are consistent with constructivist perspectives of language learning, in which knowledge is developed through active participation and social interaction. Taken together, these findings suggest that the educational contribution of Sound Expedition extends beyond immediate improvements in learners' self-perceived confidence. These perceptions are consistent with previous research demonstrating that gamified language learning environments enhance learner engagement and enjoyment (Chan & Lo, 2024). However, unlike many digital gamification studies, participants in the present study consistently associated their engagement with purposeful movement, collaborative interaction, and authentic communication rather than technology-mediated game elements.

Learners' Experiences of Participating in Sound Expedition

To gain a deeper understanding of learners' experiences of participating in Sound Expedition, participants completed six open-ended reflection questions immediately after the intervention. The responses were analysed using thematic analysis, resulting in five interconnected themes that explain how learners experienced the physically gamified English language learning intervention. Rather than simply describing individual activities, the themes illustrate how physical gamification shaped learners' engagement, vocabulary learning, communication, collaboration, and perceptions of the learning process. Collectively, these qualitative findings complement the quantitative results by providing richer insights into the educational potential of Sound Expedition beyond measurable changes in self-perceived confidence.

Theme 1: Learning English Through Active Participation

The first and most prominent theme that emerged from the participants' reflections was learning through active participation. Participants consistently described the intervention as enjoyable because it required them to learn English while actively moving, listening, speaking, and interacting with their peers. Rather than perceiving the

activities as isolated language exercises, learners emphasised the opportunity to participate physically while completing collaborative language-related challenges.

One participant commented, *"The games were fun, interesting and engaging."* (Participant 11)

Similarly, another participant described the intervention simply as,

"Everything was so fun." (Participant 1)

Several participants also identified physically engaging activities as the most memorable aspects of the intervention. For example, one learner explained,

"I enjoy making sounds according to the verbs and my friends will guess it." (Participant 8)

Another participant reflected,

"Station 4 because I like playing charade." (Participant 4)

These reflections indicate that learners did not separate movement from language learning. Instead, physical participation became an integral part of how they listened, communicated, interpreted meaning, and completed language related tasks. Activities such as producing sounds, acting out vocabulary, and moving between learning stations transformed language use into an active and collaborative process rather than a passive classroom exercise. Importantly, participants rarely described the intervention solely as a "game." Instead, they focused on the opportunities to interact, communicate, and solve problems together, suggesting that the educational value of the intervention extended beyond enjoyment alone.

This finding reflects the principles of physical gamification, in which movement is intentionally embedded within learning activities to support meaningful engagement with language. Rather than functioning as an additional motivational feature, physical movement became part of the learning process itself by requiring participants to use English while accomplishing shared goals. This interpretation is consistent with Embodied Cognition Theory, which argues that cognitive processes are grounded in bodily interaction with the physical and social environment (Wilson, 2002). Similarly, Jusslin et al. (2022) suggest that embodied language learning enables learners to experience language through purposeful action, interaction, and participation rather than through passive exposure to linguistic input.

The findings therefore suggest that one of the principal educational contributions of Sound Expedition lies in its ability to transform English language learning into an active participatory experience. By integrating purposeful movement with authentic communication, the intervention created learning opportunities in which participants learned English by doing rather than by merely receiving information.

Theme 2: Vocabulary Learning Through Authentic Communication

Another prominent theme that emerged from the participants' reflections was the opportunity to learn and apply English vocabulary through authentic communication. Rather than describing vocabulary learning as memorising isolated words, participants consistently emphasised that they encountered, recalled, and used vocabulary while interacting with their teammates to complete physically engaging language tasks. These experiences required learners to listen carefully, interpret meaning, retrieve appropriate vocabulary, and communicate their ideas within meaningful contexts.

Several participants explicitly acknowledged that the intervention supported vocabulary development. One participant commented,

"Learned new words." (Participant 2)

Similarly, another participant reflected,

"Added new vocabularies for me." (Participant 5)

One learner also explained how the activities encouraged active language production:

"Get to know the new vocab and trigger me to construct a simple sentence in a short time." (Participant 10)

Another participant highlighted the importance of using newly acquired vocabulary creatively:

"By using our own ideas with new words too." (Participant 6)

These reflections indicate that vocabulary learning extended beyond simple word recognition. Participants were required to retrieve vocabulary from memory, explain meanings, construct sentences, interpret sounds, and communicate ideas collaboratively while completing the station-based challenges. Consequently, vocabulary was learned through meaningful language use rather than through decontextualised memorisation. Such learning experiences required learners to negotiate meaning with their teammates, reinforcing both vocabulary knowledge and communicative competence simultaneously.

This qualitative finding is strongly supported by the quantitative results presented in the perception item, where *"I learned new vocabulary through the activity"* received the highest level of agreement among all perception items. The convergence of the quantitative and qualitative findings suggests that vocabulary development was one of the most salient educational outcomes perceived by participants, despite the relatively modest changes observed in their self-perceived listening and speaking confidence.

From the perspective of physical gamification, vocabulary learning was embedded within purposeful action rather than treated as an isolated learning objective. Participants encountered vocabulary while listening to environmental sounds, acting out target words, interpreting clues, and communicating with teammates to solve problems. This design reflects constructivist views of language learning, whereby learners actively construct knowledge through interaction and shared experiences. At the same time, this aligns with embodied language learning, which proposes that language is acquired more meaningfully when learners engage cognitively, socially, and physically with learning tasks (Jusslin et al., 2022).

Taken together, these findings suggest that the educational potential of Sound Expedition lies not only in exposing learners to new vocabulary but also in creating authentic communicative situations in which vocabulary is actively negotiated, applied, and reinforced through purposeful physical participation. Such experiences may explain why learners consistently perceived vocabulary development as one of the most valuable aspects of the intervention.

Theme 3: Collaboration as a Catalyst For Language Learning

A third theme that emerged from the participants' reflections was the important role of collaboration in supporting English language learning. Throughout Sound Expedition, learners worked in small groups to complete physically gamified challenges that required them to communicate, exchange ideas, interpret clues, and solve problems collectively. Rather than completing tasks individually, participants relied on continuous interaction with their teammates to accomplish each station's objectives. These collaborative exchanges created authentic opportunities for learners to use English while negotiating meaning and making shared decisions.

Several participants explicitly recognised the collaborative nature of the intervention. One participant reflected that the activity enhanced communication skills by requiring team members to work together throughout the learning process:

"Enhances my listening and communication skills." (Participant 11)

Similarly, another participant explained that the intervention encouraged learners to express ideas collaboratively while using newly acquired vocabulary:

"By using our own ideas with new words too." (Participant 6)

Participants also associated their enjoyment of the activities with working together to solve language related challenges. For example, one learner commented,

"The stations were engaging." (Participant 12)

Another participant highlighted that the activities were enjoyable because they required teammates to guess sounds and actions collaboratively:

"Station 4 because we had fun acting out the words given." (Participant 10)

These reflections suggest that collaboration functioned as more than a means of completing the activities. The physically gamified tasks required learners to listen carefully to one another, provide verbal explanations, negotiate possible answers, and support teammates during problem solving. Such interactions naturally created repeated opportunities to practise English within meaningful communicative situations. Consequently, language learning occurred through collaborative participation rather than through individual knowledge acquisition.

These findings resonate strongly with Social Constructivist Theory, which proposes that learning is socially mediated through interaction with others. From this perspective, knowledge is constructed collaboratively as learners exchange ideas, negotiate meaning, and support one another during shared learning experiences. Within Sound Expedition, the station-based challenges required learners to co-construct understanding by combining listening, speaking, vocabulary retrieval, and collaborative problem solving. This social dimension of learning complements the embodied nature of the intervention, demonstrating that meaningful language learning emerged through the integration of purposeful movement and interpersonal interaction.

The findings also reinforce the principles of physical gamification, in which collaboration is intentionally embedded within game mechanics rather than functioning merely as an organisational strategy. Progress through the intervention depended not only on completing physical tasks but also on effective communication among group members. Learners were required to give instructions, interpret spoken messages, clarify misunderstandings, and negotiate solutions while moving through the learning stations. These collaborative interactions transformed language from an object of study into a practical tool for achieving shared goals.

The findings suggest that collaboration served as a catalyst for meaningful English language learning by creating authentic communicative situations in which learners actively used language to solve problems, support their peers, and accomplish common objectives. Rather than promoting individual competition, Sound Expedition encouraged collective participation, demonstrating how physical gamification can foster both language development and collaborative learning within a shared educational experience.

Theme 4: Challenges Encountered During the Learning Process

Although participants generally reported positive learning experiences, they also identified several challenges encountered during the intervention. Rather than perceiving these difficulties negatively, many participants described them as natural aspects of completing authentic language tasks that required listening, vocabulary retrieval, and collaborative problem solving. These reflections provide valuable insights into the cognitive demands of the physically gamified activities and highlight areas for future refinement.

One of the most frequently reported challenges involved recalling and applying appropriate vocabulary during the activities. Several participants acknowledged that limited vocabulary knowledge affected their ability to complete certain tasks effectively. For example, one participant reflected,

"I forgot the vocab." (Participant 10)

Similarly, another participant explained,

"I don't have enough vocabulary." (Participant 5)

Participants also experienced difficulty recalling the meanings of unfamiliar words while completing the station-based challenges. One learner commented,

"During Station 3 it was hard to remember the words." (Participant 6)

These reflections suggest that the intervention required learners to retrieve vocabulary from memory under authentic communicative conditions rather than relying on recognition alone. Although this created additional cognitive demands, such retrieval processes are recognised as an important component of vocabulary learning because actively recalling lexical items strengthens long term retention and facilitates subsequent language use.

A second challenge related to listening and auditory processing. Several participants indicated that identifying sounds or understanding spoken information during the activities required sustained attention. One participant remarked,

"Using only sounds and not words." (Participant 7)

Another participant simply noted,

"My hearing is a problem." (Participant 4)

These comments indicate that some listening tasks demanded careful auditory discrimination, particularly when learners were required to interpret environmental sounds, whispered messages, or verbal clues. Such challenges are consistent with the objectives of Sound Expedition, which was designed to encourage learners to rely on active listening as an essential component of successful communication.

In addition to language-related challenges, several participants commented on organisational aspects of the intervention. Some learners mentioned waiting for other groups to complete their stations before progressing, while others suggested that facilitators could be more energetic or that additional stations could be incorporated. Although these observations relate primarily to implementation rather than pedagogy, they provide valuable feedback for enhancing future iterations of the intervention without detracting from its educational objectives.

Importantly, the challenges reported by participants should not be interpreted solely as obstacles to learning. From the perspective of physical gamification, meaningful learning often occurs when learners are required to solve problems, negotiate uncertainty, and apply language under authentic conditions rather than complete highly structured exercises with predetermined answers. Similarly, constructivist perspectives suggest that cognitive challenge encourages learners to actively construct knowledge through interaction, reflection, and collaboration. The vocabulary retrieval difficulties and listening demands reported by participants therefore illustrate that Sound Expedition required learners to engage with English in ways that extended beyond passive recognition or memorisation.

These findings suggest that the challenges experienced during Sound Expedition formed an integral part of the learning process. Rather than reducing the educational value of the intervention, they reflected the authentic

communicative demands of the physically gamified activities and highlighted opportunities for further refinement in future implementations.

Theme 5: Learners' Recommendations For Enhancing Physical Gamification

The final theme concerned participants' recommendations for improving future implementations of Sound Expedition. Although learners expressed highly positive perceptions of the intervention, many also provided constructive suggestions that reflected their desire for a more engaging and challenging physically gamified learning experience. Rather than indicating dissatisfaction, these recommendations suggest that participants recognised the educational value of the intervention and were interested in extending its learning potential.

One of the most frequently reported recommendations was to increase the variety and number of learning stations. Several participants suggested that incorporating additional activities would further enhance engagement and provide more opportunities to practise English. For example, one participant commented,

"More stations and more facilitators in each station." (Participant 11)

Similarly, another participant simply recommended,

"Add more stations." (Participant 12)

Participants also proposed increasing the level of challenge within the learning activities. One learner suggested,

"More challenging vocabulary." (Participant 9)

This recommendation indicates that some participants, particularly those with higher self-perceived English proficiency, desired tasks that required greater lexical knowledge and more complex language use. Such feedback suggests that future implementations could incorporate differentiated challenges to accommodate learners with varying proficiency levels while maintaining the collaborative nature of the intervention.

Another recurring recommendation concerned the role of facilitators. Several participants suggested that facilitators could adopt a more energetic and encouraging approach to create a livelier learning atmosphere. For example, one participant remarked,

"The facilitator need to be more sporting and talkative so that it will be more fun and happening." (Participant 8)

Similarly, another participant commented,

"The faci need to be more energetic and talkative." (Participant 10)

These reflections suggest that facilitators were perceived not only as organisers of the activities but also as contributors to learners' overall engagement and motivation. Their interactions with participants therefore represent an important component of the physically gamified learning environment.

Some participants also highlighted logistical considerations, such as waiting for other groups to complete stations before progressing to the next activity. Although these observations relate to programme management rather than instructional design, they indicate opportunities to improve the flow and pacing of future implementations. Addressing these practical aspects may help sustain learners' engagement throughout the intervention without altering its pedagogical principles.

Collectively, these recommendations demonstrate that learners viewed Sound Expedition as a meaningful learning experience with considerable potential for further development. Rather than requesting fundamental changes to

the instructional approach, participants primarily suggested expanding the scope of the activities, increasing the level of challenge, and enhancing facilitation. These recommendations reinforce the educational potential of physical gamification by indicating that learners valued the combination of movement, authentic communication, and collaboration and wished to experience these elements more extensively in future iterations.

The qualitative findings demonstrate that learners experienced Sound Expedition as more than a recreational game. Their reflections consistently highlighted how purposeful physical movement, authentic communication, collaborative interaction, and vocabulary-rich learning activities contributed to meaningful English language learning. While participants acknowledged challenges related to vocabulary retrieval, listening demands, and programme logistics, these difficulties were generally perceived as part of an engaging learning process rather than barriers to participation. Importantly, the learners' recommendations focused on expanding rather than replacing the existing intervention, suggesting that they recognised the educational value of the physically gamified approach. These findings complement the quantitative results by demonstrating that the potential of Sound Expedition lies not only in measurable changes in learners' self-perceived confidence but also in its ability to create authentic, collaborative, and embodied opportunities for English language learning.

Integration of Findings

Although the quantitative findings indicated only modest improvements in learners' self-perceived listening and speaking confidence, the qualitative findings consistently demonstrated positive perceptions and meaningful learning experiences associated with Sound Expedition. Rather than contradicting one another, these findings provide complementary evidence regarding the educational potential of physical gamification. The quantitative data suggest that a single intervention may be insufficient to produce statistically detectable changes in learners' confidence, whereas the qualitative findings illustrate how purposeful movement, authentic communication, and collaborative interaction contributed to meaningful English language learning experiences. Viewed together, these findings reinforce the value of adopting a convergent mixed methods design, as the qualitative evidence provides contextual insights that extend beyond what could be captured through self-assessment measures alone.

CONCLUSION

This study explored the potential of Sound Expedition as a physically gamified English language learning intervention for promoting meaningful English language learning among undergraduate students. By adopting a convergent mixed-methods design, the study combined quantitative measures of learners' self-perceived listening and speaking confidence with qualitative reflections on their learning experiences. This integration of findings provided a comprehensive understanding of how participants experienced the intervention beyond measurable changes in self-perceived confidence.

The quantitative findings indicated modest improvements in learners' self-perceived speaking confidence and overall English language confidence following participation in the intervention, although these improvements did not reach statistical significance. The relatively high baseline confidence levels reported by many participants, together with the short duration of the intervention, may have limited the potential for substantial measurable gains. Nevertheless, the perception data and qualitative findings consistently demonstrated that participants regarded Sound Expedition as an enjoyable, meaningful, and engaging learning experience that supported vocabulary development, authentic communication, and collaborative learning. These findings suggest that the educational value of physical gamification extends beyond immediate improvements in learners' self-perceived confidence by creating authentic opportunities for learners to use English purposefully while interacting with their peers and learning environment.

From a theoretical perspective, this study contributes to the growing body of literature on physical gamification by demonstrating how purposeful movement can function as an integral component of English language learning rather than merely as a motivational strategy. The findings also provide empirical support for the principles of

embodied language learning and social constructivism, illustrating that learners construct language knowledge through active participation, authentic communication, and collaborative interaction. Rather than separating physical activity from language learning, Sound Expedition integrated movement, communication, and problem-solving into a unified learning experience that encouraged learners to engage with English in meaningful contexts.

The findings also offer several practical implications for English language educators. First, the study demonstrates that physically gamified learning activities can be incorporated into English language classrooms to promote learner engagement while simultaneously encouraging authentic language use. Second, the intervention illustrates how vocabulary learning, listening, speaking, and collaborative problem solving can be integrated within station-based learning activities that require purposeful physical movement. Finally, the participants' recommendations suggest that future implementations could further strengthen the intervention by incorporating additional learning stations, differentiated language challenges to accommodate varying proficiency levels, and enhanced facilitator training to maximise learner engagement.

Several limitations should be acknowledged when interpreting the findings. The study involved a relatively small sample of participants from a single higher education institution and employed a one-group pre-intervention and post-intervention design without a comparison group. Consequently, the findings should be interpreted as exploratory rather than conclusive. Furthermore, the quantitative findings were based on learners' self-perceived confidence rather than objective measures of language performance. Future research could therefore examine the potential of physical gamification using larger and more diverse samples, longitudinal intervention designs, comparison groups, and objective assessments of listening, speaking, and vocabulary development. Such studies would provide a more comprehensive understanding of the long-term educational value of physically gamified English language learning interventions.

Overall, this study demonstrates the potential of physical gamification to create meaningful English language learning experiences by integrating purposeful movement, authentic communication, collaborative interaction, and vocabulary-rich learning activities. Although immediate improvements in learners' self-perceived confidence were modest, the convergence of the quantitative and qualitative findings suggests that the value of Sound Expedition lies in creating learning environments where English is actively experienced rather than passively received. As interest in active and learner-centred pedagogies continues to grow, physical gamification offers a promising direction for designing engaging and meaningful English language learning experiences in higher education.

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