

Synergistic Efficacy of an Integrated Gamified and Multiple Intelligences-Based Model on Young EFL Learners' Proficiency and Confidence

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Abstract—Second language acquisition in early childhood is frequently impeded by significant affective barriers, including language anxiety and low self-confidence. This study investigates the efficacy of a pedagogical model that synergistically integrates gamification and Howard Gardner's theory of Multiple Intelligences (MI) to mitigate these barriers and enhance learning outcomes in a kindergarten English as a Foreign Language (EFL) context. Employing a quasi-experimental, pre-test/post-test non-equivalent control group design, 90 kindergarten students were assigned to either an experimental group (N=45) using the integrated model or a control group (N=45) receiving traditional instruction. Quantitative data from language proficiency and confidence observation sheets were analyzed alongside qualitative data from participatory observation, interviews, and artifact analysis. The results indicate a statistically significant advantage for the experimental group, which demonstrated a mean score gain of +11.5 points in language proficiency compared to +5.0 for the control group. More profoundly, the intervention had a transformative impact on learner confidence, with the experimental group showing a mean gain of +5.5 points versus a negligible +1.2 for the control group. Thematic analysis of qualitative data revealed three core mechanisms driving these outcomes: (1) the cultivation of a low-anxiety environment promoting fearless exploration, (2) personalized engagement through multiple intelligences, and (3) a pedagogical shift from passive reception to active learning and student agency. The synthesis of these findings suggests that the integrated model creates a holistic learning ecosystem that simultaneously nurtures the affective and cognitive dimensions of the child, thereby lowering the affective filter and accelerating language acquisition.

Index Terms—gamification, multiple intelligences, English language learning, confidence, language anxiety

I. INTRODUCTION

The acquisition of a second language in early childhood represents a critical developmental window, yet the process is often undermined by significant affective barriers that inhibit progress. Young learners frequently experience language anxiety, low self-confidence, and fluctuating motivation, factors which collectively form what Krashen (1985) conceptualized as the "Affective Filter". This theoretical construct posits that negative emotions create a metaphorical barrier, blocking the comprehensible input necessary for language acquisition, irrespective of instructional quality. Research by Li et al. (2025) specifically underscores the dynamic relationship between affective processes and intrinsic motivation in language acquisition, a mechanism directly targeted by gamification.

Traditional pedagogical paradigms in many English as a Foreign Language (EFL) context, often characterized by rote memorization, teacher-centric instruction, and public error correction, can inadvertently heighten this filter. This creates a high-stakes environment where the fear of making mistakes stifles participation and communicative risk-taking. To address these pedagogical challenges, this study investigates an innovative model that synergistically integrates two powerful theoretical frameworks: gamification and Howard Gardner's theory of Multiple Intelligences (MI).

Gamification, defined as the application of game-design elements in non-game contexts, has demonstrated considerable potential for increasing motivation, engagement, and knowledge retention by fostering a low-pressure, intrinsically rewarding learning environment. Studies by Al-Obaydi et al. (2024) and Tanjung (2025) reinforce the empirical evidence that gamification is highly effective in boosting intrinsic motivation and overall language proficiency in EFL learners. By reframing failure as an integral, non-judgmental part of the learning process and providing immediate, constructive feedback, gamification directly mitigates the affective filter. Zimmerman (2025) further notes that Gamification-Assisted Language Learning (GALL) enhances positive language behavior and significantly decreases language learning anxiety.

Concurrently, Gardner's (1983) theory of Multiple Intelligences challenges the monolithic view of intelligence, proposing instead a constellation of distinct cognitive capacities. This framework critiques the "one-size-fits-all" educational model. Research by Safitri et al. (2021) advocates for the early detection and appropriate stimulation of MI in kindergarten, emphasizing the necessity of integrated learning activities. An MI-based curriculum provides multiple "entry points" to learning, enabling children to engage with material through their dominant intelligences, thereby rendering the process more relevant, enjoyable, and ultimately effective.

While both gamification and MI theory have been explored independently, a review of recent literature reveals critical gaps that this study aims to address. The primary novelty of this research lies in its synergistic integration of both frameworks into a single, cohesive pedagogical model and its use of a mixed-methods approach to empirically measure both cognitive (language proficiency) and affective (confidence) outcomes in a kindergarten EFL setting. Ariyani et al. (2024) highlight the need for a holistic approach that evaluates gamification from a broader perspective, including full school engagement dimensions, not merely motivation.

Murray et al. (2024) investigated non-digital gamification, reporting positive effects on reading fluency and attitudes. This focus on a single linguistic skill leaves a gap in understanding the impact of digital, multi-modal interventions, such as those utilizing Augmented Reality (AR) or AI-driven systems. For instance, Hassan and Khan (2025) found that AR enhanced motivation, reduced anxiety, and improved fluency in younger learners, suggesting the efficacy of advanced digital tools. However, their work did not incorporate the MI framework or quantitatively measure confidence as a distinct, primary variable.

A meta-analysis by Wang et al. (2022) demonstrated a moderately positive effect of game-based learning on English in kindergarten. While providing a broad statistical overview, this meta-analysis lacks the granular, qualitative data necessary to explain the underlying pedagogical mechanisms—the how and why an intervention succeeds. Furthermore, it does not specifically examine an integrated gamified/MI model. Other qualitative action research explored the stimulation of multiple intelligences, finding that integrated learning activities could enhance MI potential. This research focuses exclusively on the MI framework without the motivational affordances of gamification, and its outcomes center on the development of the intelligences themselves, rather than on language proficiency and confidence as the primary dependent variables. Similarly, a purely qualitative study on teacher perceptions of gamification for vocabulary development, reporting enhanced motivation, relies solely on teacher reports and lacks the robust quantitative pre-test/post-test design and student-centered qualitative data employed here. Lastly, a descriptive study identified a problem in English lesson plans, finding a predominance of activities targeting only logical-mathematical and linguistic intelligences and thus a need for more diverse and motivating activities. This study expertly identifies the problem but does not empirically test an intervention. The potential of combining digital motivators with personalized learning is further supported by Chen and Wu (2025), who demonstrated that integrating gamification and AI creates a more dynamic and student-centered educational experience tailored to individual learning needs.

Thus, this study addresses these gaps by: (1) Integrating digital gamification and MI theory into a single, holistic intervention; (2) Employing a mixed-methods design that combines quantitative outcome data with rich qualitative process data; and (3) Placing strong, explicit emphasis on measuring the affective domain through the quantitative assessment of confidence, in addition to language proficiency. This research seeks to answer the central question: To what extent does this integrated model impact young learners' language proficiency and confidence compared to traditional teaching methods? By synthesizing quantitative performance data with qualitative observations of the learning process, this study aims to provide a holistic picture of the model's effectiveness and its underlying mechanisms.

II. LITERATURE REVIEW

A. *Affective Barriers and Gamified Interventions in Second Language Acquisition*

The acquisition of a second language is a complex process profoundly influenced by the learner's affective state. A primary obstacle identified in the literature is the presence of affective barriers, including anxiety, low self-confidence, and fluctuating motivation, which can create a "mental block" that impedes language processing (Du, 2009). This concept is formally articulated in Stephen Krashen's Affective Filter Hypothesis, which posits that negative emotional states raise a metaphorical filter, preventing comprehensible language input from being processed for acquisition. Conversely, a low-anxiety, high-confidence environment lowers this filter, facilitating learning (Krashen, 1985). Modern studies, such as Bhuiyan and Alomari (2025), continue to confirm the strong negative correlation between high affective filter levels and successful language performance. The primary objective of effective language pedagogy is thus to create conditions that consistently mitigate this affective filter.

In response, computer-assisted language learning (CALL) has increasingly adopted gamification—the use of game design elements in non-game contexts—as a powerful strategy to enhance motivation and engagement (Deterding et al., 2011; Kapp, 2012). Recent empirical research highlights gamification's capacity to boost intrinsic motivation (Lin et al., 2024) and improve student engagement metrics across diverse language tasks (Qian et al., 2023). Mechanics such as points, badges, and leaderboards have shown promise in making language learning more interactive and appealing (Hwang et al., 2017).

More specifically, digital game-based learning (DGBL) has proven highly effective at creating the low-stress, low-stakes environments essential for language practice. Within a game, failure is reframed not as a personal shortcoming but as a natural part of the learning process, which has been shown to increase learners' willingness to communicate (Reinders & Wattana, 2015). Empirical studies confirm that DGBL environments can significantly reduce language anxiety, with some research indicating that high-anxiety learners often demonstrate greater progress in these settings compared to traditional instruction (Yang & Chen, 2024). This anxiety-reducing effect is linked to improved self-efficacy (Jia et al., 2025) and greater confidence in speaking tasks (Tzeng, 2024).

However, the effectiveness of gamification can be inconsistent. Poorly designed competitive elements can sometimes exacerbate anxiety, underscoring the need for a more nuanced, pedagogically grounded approach (Dehganzadeh & Dehganzadeh, 2020; Hanus & Fox, 2015). For instance, an overreliance on leaderboards can be detrimental, especially for lower-proficiency learners, leading to social comparison anxiety (Gao & Zhao, 2023). Therefore, effective design requires careful alignment with pedagogical goals to maximize positive affective outcomes and avoid unintended negative consequences (Zhou et al., 2024).

B. *Multiple Intelligences Theory*

A significant limitation of traditional language instruction and generic gamification is the reliance on a monolithic view of intelligence. Howard Gardner's Theory of Multiple Intelligences (MI) offers a transformative pedagogical framework by challenging this notion. Gardner (1983) proposed that human intelligence is not a single, general capacity but rather a composite of several distinct modalities. The contemporary relevance of this approach in education is widely supported (Al-Zahrani, 2025). The eight most recognized intelligences are Verbal-Linguistic, Logical-Mathematical, Visual-Spatial, Bodily-Kinesthetic, Musical, Interpersonal, Intrapersonal, and Naturalist (Armstrong, 2009). The theory posits that every individual possesses a unique profile of these intelligences, each with varying strengths, and that these capacities can be developed through practice. Research confirms the existence of these unique learning profiles and their direct influence on L2 learning styles (Prakoso & Syafryadin, 2024).

The pedagogical imperative of MI theory mandates a fundamental shift away from a "one-size-fits-all" educational model. In language teaching, this requires moving beyond the traditional overemphasis on Verbal-Linguistic and Logical-Mathematical activities (e.g., grammar drills, translation)—a practice recent studies criticize for limiting learner potential (Wang & Lee, 2023). Instead, an MI-informed instructional design intentionally incorporates a variety of activities that engage different cognitive abilities. For instance, a learner with strong Bodily-Kinesthetic intelligence may internalize vocabulary more effectively through role-playing, while a learner with high Musical intelligence might better grasp sentence structures through rhythm or melody (Armstrong, 2009).

By providing multiple pathways for learning and assessment (Sari et al., 2022), educators can validate students' unique strengths, engage a wider spectrum of learners, and foster a more inclusive and effective educational environment. Studies confirm that MI-based curricula significantly enhance learner achievement and satisfaction compared to traditional methods (Ghasemi & Parsa, 2024).

C. *Synergizing Gamification and Multiple Intelligences for Meaningful Learning*

The true potential for mitigating affective barriers and building learner confidence lies in the deliberate synthesis of gamification's motivational architecture with the pedagogical inclusivity of MI theory. This synergy moves beyond simply tacking points and badges onto existing tasks; instead, it utilizes the MI framework as a blueprint for designing varied, personalized, and meaningful gamified experiences. The integration of MI and gamification has been empirically proven to enhance educational outcomes more significantly than either framework used in isolation (Susilo et al., 2024; Wu & Hsieh, 2025).

This approach involves consciously mapping specific game mechanics to different intelligences. For example, narrative-driven quests cater to Verbal-Linguistic intelligence, collaborative puzzles engage Interpersonal intelligence, and rhythm-based challenges appeal to Musical intelligence. This conscious alignment of game elements with cognitive strengths is essential for ensuring pedagogical effectiveness (Lin & Yu, 2023). By offering a portfolio of activities, a single platform provides students with the autonomy to engage with material through their areas of cognitive strength, thereby fostering a profound sense of competence and lowering the affective filter.

This integrated framework directly addresses the risk of superficial gamification, often termed "chocolate-covered broccoli," where extrinsic rewards are added to uninspired tasks (Kapp, 2012). By aligning game mechanics with learners' intrinsic cognitive profiles, the focus shifts from extrinsic rewards to intrinsic motivation. This cultivation of what scholars call "meaningful gamification" prioritizes the psychological needs for competence, autonomy, and relatedness (Nicholson, 2013; Ryan & Deci, 2000). The satisfaction of these fundamental psychological needs through well-designed systems is central to sustained engagement (García-Cabot et al., 2024). For example, engagement from a collaborative quest designed for Interpersonal learners derives from the social interaction itself, not merely the points awarded. This model ensures that gamification serves not as a superficial motivational layer but as an integral tool for deep, inclusive, and empowering language learning, maximizing both affective and cognitive benefits (Purnama & Setyawan, 2022).

III. METHODOLOGY

This study utilized a quasi-experimental pre-test/post-test non-equivalent control group design. This design was primarily selected for its substantial ecological validity, permitting intervention assessment in real, non-manipulated kindergarten environments where random participant assignment is not possible.

A. Participants

Participants in this research were 90 kindergarten students from the same educational institution. The sample was split into the institution's two existing class groups: one designated as the Experimental Group (N=45) and the other serving as the Control Group (N=45). The educational literature acknowledges the use of these intact groups as a convenience sample that may sacrifice generalizability, a trade-off often necessary for pragmatic and ethical reasons.

B. Intervention

The intervention lasted 12 weeks. The mobile gaming application provided an innovative approach to English learning for the Experimental Group. The application promoted diverse engagement opportunities through numerous activities designed to be inclusive of a range of Multiple Intelligences (MI). For example, users could interact with vocabulary in a musical game, trace letters to engage the Bodily-Kinesthetic intelligence, or complete word formation using spatial puzzles to address the Visual-Spatial intelligence. To maintain a low-stress environment, the application utilized game elements, such as points and animations, coupled with positive reinforcement for correct answers. Cheerful animations and praise provided feedback in a playful and non-threatening manner to effectively mitigate learning anxiety. The Control Group was taught using the traditional kindergarten approach, characterized by teacher-centered methods such as recitation, flashcard drills, and worksheets.

C. Instruments and Procedure

Data collection involved a mixed-methods approach, where the combination of qualitative and quantitative tools allowed for a more comprehensive account of the study's findings. To assess the change in the primary dependent variables, two observational checklists—the Language Proficiency Observation Sheet (a 35-point scale measuring vocabulary recognition, comprehension, and word production; see Appendix A, Instrument 1.A) and the Confidence Behavior Observation Sheet (a 16-point scale measuring the frequency of four behaviors associated with learning confidence: initiating speech, participation, positive body language, and error resilience; see Appendix A, Instrument 1.B)—were created and administered prior to pre-test and following post-test the intervention.

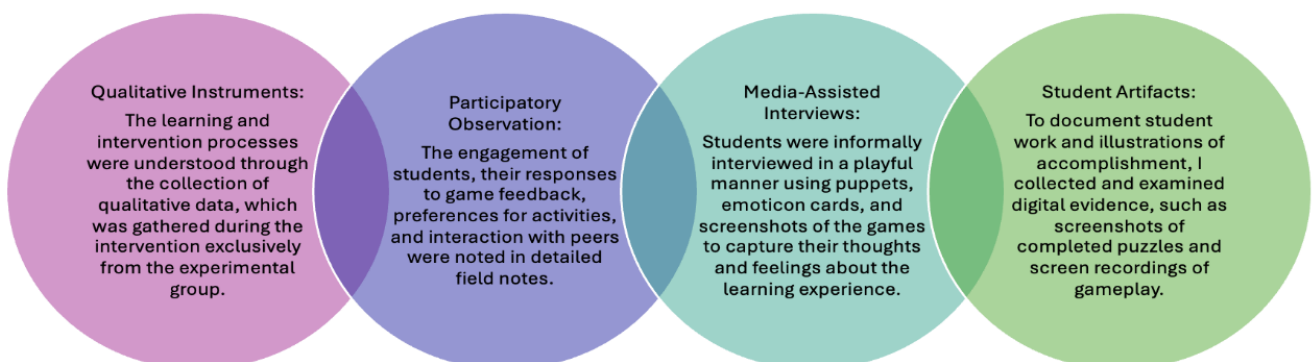


Figure 1. The Steps of Collecting Data

D. Data Analysis

To evaluate the quantitative data, analysis was performed using paired-samples *t*-tests on the pre-test and post-test scores for each group, and independent-samples *t*-tests on the score gains between the experimental and control groups. For the qualitative data, thematic analysis was applied to the field notes, interview transcripts, and descriptions of the artifacts to identify patterns and themes that might explain the quantitative results.

IV. RESULTS AND DISCUSSIONS

The analysis of the collected data revealed statistically significant and practically meaningful differences between the experimental and control groups, with the gamified, MI-based model demonstrating superior outcomes in both language proficiency and, most notably, learner confidence.

A. Quantitative Findings

1. Language Proficiency

The data indicate a dramatic divergence in learning trajectories between the two groups. While both groups began from a nearly identical baseline (mean score of ~12), the experimental group experienced a quantum leap in language mastery post-intervention.

TABLE 1
COMPARISON OF MEAN SCORES FOR LANGUAGE PROFICIENCY

Group	Number of Students (N)	Pre-Test Mean Score	Post-Test Mean Score	Score Gain
Experimental (Game)	45	12.2	23.7	+11.5
Control (Traditional)	45	12.1	17.1	+5.0

The experimental group's mean score gain of +11.5 points was more than double the +5.0-point gain observed in the control group, indicating a powerful intervention effect on the rate of language acquisition.

2. Confidence

The most transformative impact of the intervention was observed in the affective domain. The game-based model demonstrated outstanding superiority in fostering confident learning behaviors.

TABLE 2
COMPARISON OF MEAN SCORES FOR CONFIDENCE BEHAVIOR

Group	Number of Students (N)	Pre-Test Mean Score	Post-Test Mean Score	Score Gain
Experimental (Game)	45	6.5	12.0	+5.5
Control (Traditional)	45	6.4	7.6	+1.2

The experimental group experienced what can be described as an explosion of confidence, with a score increase of +5.5 points, which is more than four times the minimal +1.2-point increase observed in the control group.

B. Qualitative Findings

Thematic analysis of the qualitative data from the experimental group revealed three central themes that elucidate the mechanisms behind the intervention's success.

1. Fearless Exploration

The primary foundation of the intervention's success was its ability to create a psychologically safe learning environment that systematically dismantled language anxiety. The game's non-judgmental feedback loop was central to this process, as captured in an observation of Student F: "Observation of Student F showed him attempting to match the picture of a 'fish' four times. Each time he was incorrect, the picture simply wiggled playfully and returned to its place without any negative sound or 'X' mark. On his fifth try, he succeeded, and the game character danced cheerfully. Student F laughed and clapped his hands. He showed no frustration, but rather a persistence driven by curiosity." This low-stakes environment, where mistakes are reframed as neutral and even amusing parts of the discovery process, stands in stark contrast to traditional settings where public error correction can induce shame. This finding is supported by teachers in other contexts who have noted that when they model mistake-making, students "realize that it really is okay... They feel more confident".

2. Personalized Engagement Through Multiple Intelligences

The intervention achieved exceptionally high levels of student engagement by offering a variety of activities that served as different "entry points" for each child, aligning with their dominant intelligences. "Children with Kinesthetic intelligence were highly enthusiastic about modules where they could trace letters on the screen with their finger.

Meanwhile, children with Musical intelligence were able to memorize the names of fruits much faster after singing a song about them from the game." This multi-modal approach allowed children to learn through their cognitive strengths, making the process feel relevant and intrinsically rewarding. This aligns with observations from other educators using gamification, with one teacher noting her students were "studying vocabulary much more than before" because the activities presented a motivating challenge.

3. Transformation from Passive Receivers to Active Learners

The constant interactivity of the game fundamentally shifted the students' role from that of a passive audience to active agents in their own learning. This shift is powerfully encapsulated in the spontaneous declaration of Student N after successfully solving a word puzzle: Pointing proudly at the screen, he exclaimed, "I made it! Not the teacher, me!" This statement signifies a profound growth of learning ownership and agency. This is consistent with the views of educators who find that gamification empowers students because "they feel like they are in control of their learning journeys and ability to succeed".

Implications and Theoretical Alignment

The findings of this study gain deeper significance when contextualized within foundational theories of language acquisition in young learners. For young children, language acquisition is a multifaceted and dynamic process that unfolds through continuous, meaningful interaction with proficient speakers (Gervain, 2020; Ratner, 2009). This natural process is often disrupted by conventional teaching methods that fail to cater to diverse learning paces, leading to unbalanced proficiency levels (Aravind et al., 2025). The success of the gamified model in this study can be understood as an alignment with more effective, innovative approaches that mirror natural acquisition. Research confirms that methods like storytelling, drama, and play-based activities positively impact vocabulary and grammar acquisition (Alelyani & Alharbi, 2025; Guneş, 2025; Strauss & Bipath, 2020). The intervention described here functions as a technologically enhanced form of play-based learning, providing the rich, interactive, and psychologically safe environment that is optimal for young language learners. A key aspect of this model is its sophisticated approach to developing linguistic intelligence, which Gardner (1983) defines as sensitivity to spoken and written language and the ability to use it to accomplish goals. Rather than relying solely on traditional linguistic methods—which primarily benefit learners who already possess strong linguistic intelligence—this intervention strategically uses other intelligences as gateways to language learning. For instance, a child with high musical intelligence learns vocabulary through song, and a child with strong bodily-kinesthetic intelligence learns letter formation through touch. This multi-modal strategy aligns with the core tenets of MI theory, which advocates for presenting material in numerous ways to engage different cognitive strengths. In doing so, the model does not just teach to a child's strengths; it uses those strengths to scaffold and build up weaker areas, effectively enhancing their overall linguistic competence.

Synthesis of Findings

When the quantitative and qualitative data are integrated, a coherent and powerful narrative emerges. The significant quantitative score increases are not anomalies but the logical outcomes of the observed qualitative processes. The intervention's success lies in its holistic approach, which recognizes the synergistic relationship between a child's emotional state (affect) and their ability to learn (cognition). These findings are strongly supported by and contribute to the broader literature on gamification and MI-based pedagogy in early education. The positive impact of gamification observed in this study is consistent with wider research. For example, a study on non-digital gamification in a kindergarten EFL class found that it not only reduced negative feelings toward English but also significantly increased voluntary at-home reading practice (Murray et al., 2024). Furthermore, a meta-analysis of game-based learning confirmed that gamification has a moderately positive effect on English learning across various educational levels, including kindergarten (Wang et al., 2022). This body of research corroborates our finding that a gamified approach can effectively boost both engagement and skill development. Similarly, the success of the MI-based framework aligns with existing studies. Research has shown that MI-supported project-based learning leads to more positive attitudes towards English lessons and higher achievement levels (Baş & Beyhan, 2010). The MI approach has also been found to enhance classroom engagement (Ghaznavi et al., 2021) and positively impact broader aspects of early childhood development, including creativity and social skills (Roesdiyanto, 2014). This supports our conclusion that catering to diverse intelligences creates a more effective and positive learning environment. Furthermore, the findings are echoed in research from journals focused on the practical application of language studies, such as *Theory and Practice in Language Studies*. This body of work confirms that gamification is a pedagogical strategy that empowers and engages learners by creating a relaxed atmosphere (Werbach & Hunter, 2012). This aligns directly with our "Fearless Exploration" theme and the observed reduction in anxiety. Such research also highlights that gamified learning transforms students into active participants through problem-solving and instant feedback, supporting our "Active Learning" theme and the observed shift in student agency (Manzano-León et al., 2021). By leveraging play—a cornerstone of a child's social, emotional, and linguistic development—the intervention creates a powerful and holistic learning experience. However, this literature also cautions that the success of gamification is not automatic; it requires careful pedagogical design to balance game elements with learning objectives and to avoid an over-reliance on extrinsic rewards that could undermine intrinsic motivation.

The Virtuous Cycle

The explosion in confidence (+5.5 points) is directly explained by the Fearless Exploration theme. When children feel safe to fail, they become braver to try, which naturally builds their self-confidence and lowers their affective filter. The

leap in language proficiency (+11.5 points) is the combined product of the Personalized Engagement and Active Learning themes. When children learn through a path best suited for them (MI theory) and are actively involved in the discovery process, their retention and comprehension of learning material increase exponentially. This creates a virtuous cycle; the safe environment builds confidence, which encourages more active participation; this participation is channelled through effective, personalized activities, which leads to greater competence; this newfound competence, in turn, further boosts confidence, completing and reinforcing the cycle. The model did not merely teach English; it re-engineered the learning experience to be emotionally supportive and cognitively engaging.

The findings of this study gain deeper significance when contextualized within foundational theories of language.

V. CONCLUSION AND RECOMMENDATIONS

The results of this study convincingly demonstrate that a gamified English learning model integrated with a Multiple Intelligences (MI) approach is a highly effective pedagogical strategy for kindergarten students in an EFL context. The model succeeds because it creates a holistic learning ecosystem that simultaneously nurtures the affective domain (by fostering psychological safety and building confidence) and the cognitive domain (by promoting personalized engagement and student agency), thereby not only accelerating the acquisition of language proficiency but also transforming young children into confident, resilient, and self-directed learners. Consequently, these findings carry significant implications for educational practice, suggesting that a departure from traditional, one-size-fits-all methods toward dynamic, learner-centered models yields profound benefits, offering educators an evidence-based rationale for integrating playful, multi-modal activities and providing curriculum designers a successful blueprint for developing theoretically grounded digital tools. However, the study is limited using a convenience sample, which restricts the generalizability of the findings, and the twelve-week duration of the intervention, which precludes conclusions about long-term retention. Therefore, future research should aim to replicate these findings with larger, more diverse samples, employ longitudinal designs to track sustained impact, and further investigate the specific game mechanics and MI-based activities most effective for different language skills.

APPENDIX A. QUANTITATIVE INSTRUMENTS (PRE-TEST & POST-TEST)

These instruments were used before pre-test and after post-test the intervention to numerically measure change.

Instrument 1.A: Language Proficiency Observation Sheet

No.	Skill Measured	Data Collection Procedure	Scoring & Marks
A	Vocabulary Recognition	Show 20 picture cards (e.g., cat, dog, ball). Say the object's name in English and ask the student to point to the correct picture.	1 point for each correct answer. Maximum Total Score: 20
B	Command Comprehension	Give 5 simple verbal commands clearly (e.g., "Clap your hands," "Stand up"). Observe if the student performs the correct action.	1 point for each correctly followed command. Maximum Total Score: 5
C	Word Production	Show 10 different picture cards from session A. Ask, "What is this?"	1 point for each word pronounced understandably. Maximum Total Score: 10
	Total Language Proficiency Score		/ 35

Instrument 1.B: Confidence Behavior Observation Sheet

Observation Context: During a standard English language activity (outside of game use for 15 minutes).

Rating Scale: 1 = Never, 2 = Rarely (1-2 times), 3 = Sometimes (3-4 times), 4 = Often (5+ times).

No.	Observed Behavior	Operational Description	Score (1-4)
1	Speaking Initiative	The student attempts to say English words/phrases without being directly prompted by the teacher.	
2	Active Participation	The student voluntarily raises their hand, comes to the front, or joins in games/songs.	
3	Positive Body Language	The student displays eye contact, smiles, or an enthusiastic posture during the English activity.	
4	Resilience	The student tries again after a pronunciation or response error without becoming shy or withdrawn.	
	Total Confidence Score		/ 16

APPENDIX B. QUALITATIVE INSTRUMENTS (DURING THE INTERVENTION)

These instruments were used to capture the processes and experiences of students while using the game.

Instrument 2.A: Participatory Observation & Field Notes Guide

Observation Focus: Student interaction with the English language game.

Aspects to Note:

- **Initial Reaction:** Expression when first seeing the game (Curious, confused, excited?).
- **Engagement & Focus:** How long can the student focus? What distracts them?
- **Activity Preference (MI):** Which modules are preferred (Musical, Visual-Spatial, Kinesthetic, etc.)?
- **Response to Feedback:** How does the student react to "correct" or "incorrect" notifications?
- **Social Interaction:** Does the student interact with peers regarding the game?
- **Verbal & Non-Verbal Expressions:** Note any spontaneous words or facial expressions.

Instrument 2.B: Media-Assisted Brief Interview Guide

Media Used: Hand puppet, Emoticon cards (happy, sad, confused), Screenshots from the game.

Prompting Questions:

- (With puppet) "Hello, Dodo is curious, what was the most fun part of the game you just played?"
- (Showing screenshots) "Out of all of these, which game did you like the most? Why?"
- (Showing emoticon cards) "How did you feel when you were playing the game?"
- "Do you want to play this game again tomorrow?"

Instrument 2.C: Student Artifact Documentation Sheet

Artifact ID	Student Name	Date	Artifact Type	Contextual Description & Analysis
001	Student A	Oct 18, 2025	Screenshot	A picture of a house colored in the "Colors" module. Shows comprehension of the instruction "color the house red."
002	Student B	Oct 19, 2025	Short Video	Screen recording of successfully completing the "B-A-L-L" puzzle. Evidence of success in a spatial-linguistic task and prideful expression.

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