Beyond the Textbook: Engaging Generation Alpha ESL Learners through Digitally Mediated Multiple Intelligences

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Abstract

In today's screen-filled world, how we teach English as a second language to Generation Alpha needs a re-evaluation. Traditional textbooks might not be sufficient for these digital natives. This research demonstrates how educators can use technology-driven, intelligence-specific activities grounded in Howard Gardner's Multiple Intelligences theory to enhance engagement and language learning outcomes among Generation Alpha ESL learners. Employing a mixed-methods design, the study combines quantitative measures including a test to detect their multiple intelligences, and pre- and post-tests to evaluate their academic achievements before and after the interventions with qualitative classroom observations to detect the students' motivation and engagement. Participants include sixty Grade 8 students from a private secondary school in Beirut. The experimental group n=30 section A learn through digital tools ranging from language apps and gamified platforms to interactive storytelling applications, selected for their potential to engage different intelligences such as linguistic, musical, kinesthetic, and visual-spatial, while the controlled group n=30 section B receive the traditional instruction. Inferential Statistics results of the post-test scores reveal the significant difference between the two groups suggesting that digitally mediated, multiple-intelligence-based activities significantly improve learner engagement and English language proficiency. Observation of the learners display increased motivation, participation, and skill development, particularly when activities align with their dominant intelligences. The study shows which digital technologies engage different intelligences and how learners respond to tailored interventions. These findings suggest a shift from textbook-based ESL pedagogies to inclusive, tech-enhanced ones designed to Generation Alpha's learning styles.

Keywords

Generation Alpha, ESL pedagogy, multiple intelligences, digitally mediated activities

Résumé

Dans le monde omniprésent d'aujourd'hui, la manière dont nous enseignons l'anglais comme seconde langue à la génération Alpha doit être réévaluée. Les manuels scolaires traditionnels pourraient ne pas suffire à ces enfants du numérique. Cette recherche démontre comment nous pouvons utiliser des activités technologiques, spécifiques à l'intelligence, fondées sur la théorie des intelligences multiples de Howard Gardner, pour améliorer l'engagement et les résultats d'apprentissage des langues chez les apprenants d'ESL de la génération Alpha. Employant une méthodologie mixte, l'étude combine des mesures quantitatives – y compris un test pour détecter leurs intelligences multiples, et des pré-tests et post-tests pour évaluer leurs résultats scolaires avant et après les interventions – avec des observations qualitatives en classe pour évaluer la motivation et l'engagement des élèves. Les participants comprennent soixante élèves de 4e d'un lycée privé à Beyrouth. Le groupe expérimental (n=30) de la section A apprend grâce à des outils numériques allant des applications linguistiques et des plateformes ludiques aux applications de narration interactive, sélectionnés pour leur potentiel à mobiliser différentes intelligences telles que linguistique, musicale, kinesthésique et visuo-spatiale, tandis que le groupe témoin (n=30) de la section B reçoit l'enseignement traditionnel. Les résultats des statistiques inférentielles des post-tests révèlent une différence significative entre les deux groupes, suggérant que les activités numériques axées sur les intelligences multiples améliorent significativement l'engagement des apprenants et leur maîtrise de l'anglais. L'observation des apprenants montre une motivation, une participation et un développement des compétences accrus, en particulier lorsque les activités correspondent à leurs intelligences dominantes. L'étude montre quelles technologies numériques mobilisent différentes intelligences et comment les apprenants réagissent aux interventions personnalisées. Ces résultats suggèrent une transition des pédagogies ESL basées sur les manuels scolaires vers des pédagogies inclusives, optimisées par la technologie et adaptées aux styles d'apprentissage de la génération Alpha.

Mots-clés

Génération Alpha, pédagogie ESL, intelligences multiples, activités numériques

مستخلص

في عالمنا اليوم الذي يعجّ بالشاشات، لا بدّ من إعادة تقييم كيفية تدريس اللغة الإنجليزية كلغة ثانية لجيل ألفا. قد لا تكفي الكتب المدرسية التقليدية لهذا الجيل الرقمي. يُبيّن هذا البحث كيف يُمكن للمعلمين استخدام أنشطة مُوجّهة بالتكنولوجيا ومُخصّصة للذكاء، مُستندة إلى نظرية هوارد غاردنر للذكاءات المُتعددة، لتعزيز المشاركة ونتائج تعلّم اللغة بين مُتعلّمي اللغة الإنجليزية كلغة ثانية من جيل ألفا. وذلك باستخدام تصميم مُختلط الأساليب. تجمع الدراسة بين مقاييس كمية - تشمل اختبارًا للكشف عن الذكاءات المُتعددة، واختبارات مسبقة ولاحقة لتقييم إنجازاتهم الأكاديمية قبل وبعد التدخلات - مع مُلاحظات صفية نوعية للكشف عن اندفاعية الطلاب ومشاركتهم. يشمل المُشاركون ستين طالبًا من الصف الثامن من مدرسة ثانوية خاصة في بيروت. تتعلم المجموعة التجريبية (عددها 30 طالبًا في القسم أ) من خلال أدوات رقمية تتراوح بين تطبيقات اللغات ومنصات الألعاب وتطبيقات سرد القصص التفاعلية، والتي تم اختيارها لقدرتها على إشراك أنواع مختلفة من الذكاء، مثل الذكاءاللغوي والموسيقي والحركي والبصري -المكاني، بينما تتلقى المجموعة الكلاسيكيّة – التقليديّة (عددها 30 طالبًا في القسم ب) التعليم التقليدي. تكشف نتائج الإحصاءات الاستدلالية لدرجات ما بعد الاختبار عن الفرق الكبير بين المجموعتين، مما يشير إلى أن الأنشطة الرقمية القائمة على الذكاءات المتعددة تُحسّن بشكل كبير من مشاركة المتعلمين وإتقانهم للغة الإنجليزية. تُظهر مراقبة المتعلمين زيادة في الاندفاع والمشاركة وتنمية المهارات، لا سيما عندما تتوافق الأنشطة مع ذكاءاتهم السائدة. تُظهر الدراسة أيضًا قدرات التقنيات الرقمية التي تُشرك أنواعًا مختلفة من الذكاء، وكيف يستجيب المتعلمون للتدخلات المُصممة خصيصًا-لتحقيق الأهداف . تشير هذه النتائج إلى "تحول " من أساليب تدريس اللغة الإنجليزية كلغة ثانية قائمة على الكتب المدرسية إلى أساليب شاملة ومُعززة بالتكنولوجيا، مُصممة خصيصًا لأنماط تعلم جيل ألفا.

كلمات مفتاحية

جيل ألفا، أساليب تدريس اللغة الإنجليزية كلغة ثانية ، الذكاءات المتعددة، الأنشطة الرقمية

1. Introduction

The educational landscape is constantly evolving due to technological advancements and changing needs of learners. Generation Alpha, born between 2010 and 2025 (McWhirter, 2024), is a digitally native, highly visual, and accustomed to interactive and personalized experiences (Seemiller & Grace, 2024). This generation demands a shift in traditional pedagogical approaches (Livingstone & Pothong, 2021), making educators face the challenge of engaging Gen Alpha learners in meaningful ways that cater to their digital fluency and diverse learning styles.

English as a Second Language (ESL) instruction needs innovative strategies to cater to Gen Alpha learners' digital savvy needs. Traditional textbook-centered methods often fail to meet these needs (Hsu & Ching, 2023). The Multiple Intelligences (MI) theory, which posits that individuals possess a range of distinct intelligences (Moran, Kornhaber, & Gardner, 2006), offers a valuable framework for personalizing instruction and maximizing learner engagement. By incorporating digital media and catering to different intelligences, educators can create engaging learning experiences that resonate with Gen Alpha learners.

This study investigates the use of digitally mediated Multiple Intelligences to improve English language instruction for Gen Alpha learners in Lebanon. The research, focusing on the multilingual country, aims to explore the effectiveness of innovative pedagogical approaches in addressing the diverse learning styles and intelligences of Gen Alpha ESL learners (Salloum & BouJaoude, 2020).

1.1 Purpose

As educators strive to harness the potential of digitally mediated learning environments for Generation Alpha, it becomes crucial to consider how these approaches can be tailored to accommodate their unique cognitive and social needs. For instance, integrating gamification elements into language acquisition can enhance motivation and create an engaging experience (Tapp, Soloway, Norris, & St.Clair, 2024). Also, collaborative platforms can foster a sense of community even in remote settings. However, traditional methods may not resonate with learners who expect instant feedback and immersive content (Hashim, 2023). Hence, reimagining curricula with technology and student agency can enhance ESL instruction effectiveness, provide tailored learning opportunities, empower students, and promote critical thinking and collaboration in today's interconnected world.

1.2 Research Questions

- How do digitally mediated multiple intelligences influence the language proficiency of Generation Alpha ESL learners in Lebanon?

- What are the perceptions and experiences of Generation Alpha ESL learners regarding the use of digital tools in their language learning process?

2. Theoretical Framework

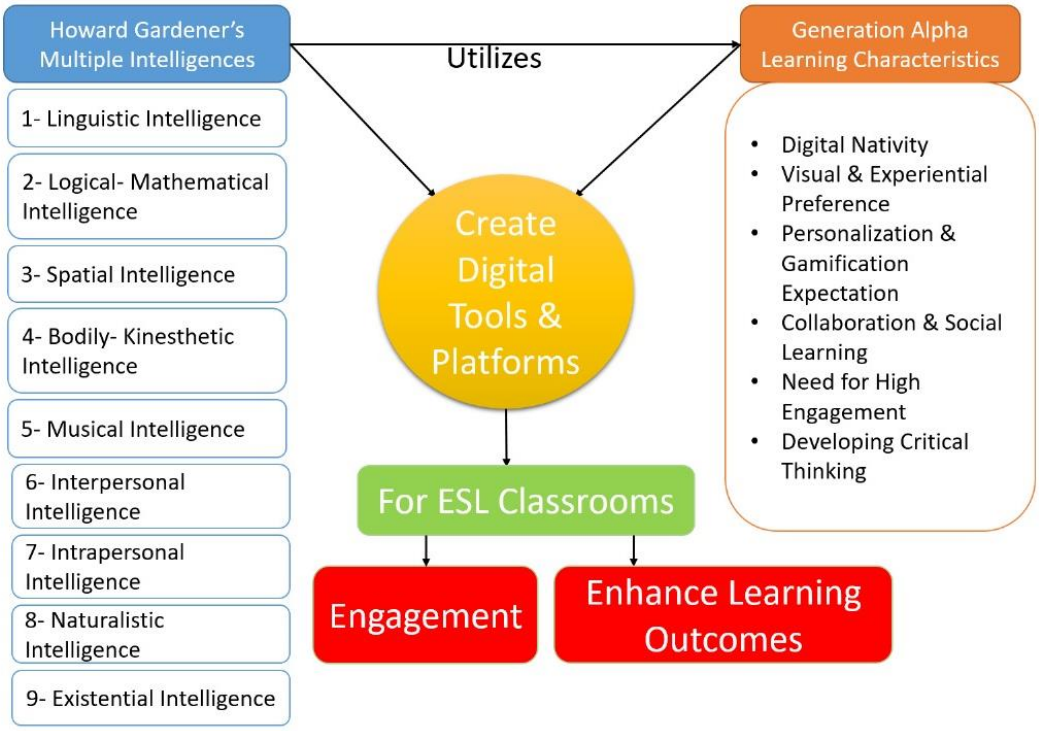
the theoretical framework of this study is primarily grounded in two key theories: Howard Gardner's Theory of Multiple Intelligences (MI) and the inherent characteristics of Generation Alpha as digital natives.

Gardner's MI theory (1983) posits that intelligence is not a singular entity but rather a combination of distinct intelligences, such as linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, naturalist, and existential. This framework is crucial because it challenges the traditional, often linguistically focused, approach to language learning. By acknowledging diverse learning strengths, educators can move beyond a "one-size-fits-all" methodology and design more inclusive and engaging ESL instruction (Rehman & Baig, 2024).

Complementing MI theory is the understanding of Generation Alpha as digital natives, defined as those born after 2010 who have never known a world without ubiquitous digital technology (Spaticchia, 2024). This generation exhibits unique characteristics, including tech-savviness, shorter attention spans for traditional formats, a strong preference for visual learning, and an expectation of interactivity and immediate feedback (Miller, 2023) (Holubova, 2024) (Nkosinkulu, 2024).

The convergence of these two theories forms the core of this study's framework. It argues that by leveraging digital tools—which intrinsically align with Generation Alpha's digital fluency and preferences—ESL educators can effectively cater to the diverse intelligences within the classroom, thereby enhancing engagement, motivation, comprehension, and retention in a Lebanese context (Aljović, 2023) (Khirzani & Hashim, 2023). This approach moves beyond the limitations of traditional methods, which often lead to disengagement and a mismatch with this generation's learning styles.

Figure 1 Conceptual Framework



1.4 Rationale and Significance

The literature on digitally mediated multiple intelligences for Generation Alpha ESL learners in Lebanon is limited, lacking focus on their unique socio-economic and cultural factors. Existing studies lack practical applications and learner-centric perspectives. This study aims to address these gaps by exploring innovative digitally mediated approaches for engaging Generation Alpha learners.

2. Literature Review

To understand how MI theory can be enhanced through technology, it is essential to examine recent developments in digitally mediated instruction. The Theory of Multiple Intelligences (MI) (Gardner, 1983) has been reshaped by the recognition of diverse intelligences beyond linguistic and logical skills, promoting teaching strategies that cater to individual learner strengths (Akpan, 2025). This theory is crucial in sustainable education, but challenges like limited teacher preparation and rigid curricula persist (Abraham & Adeniji, 2023). Combining MI with AI tools can enhance language engagement and outcomes, boosting inclusivity and motivation by adapting tasks to learners' unique strengths (Eslit, 2023). These findings suggest that digitally mediated MI instruction can support ESL proficiency and cater to Generation Alpha's need for personalized, tech-driven learning experiences.

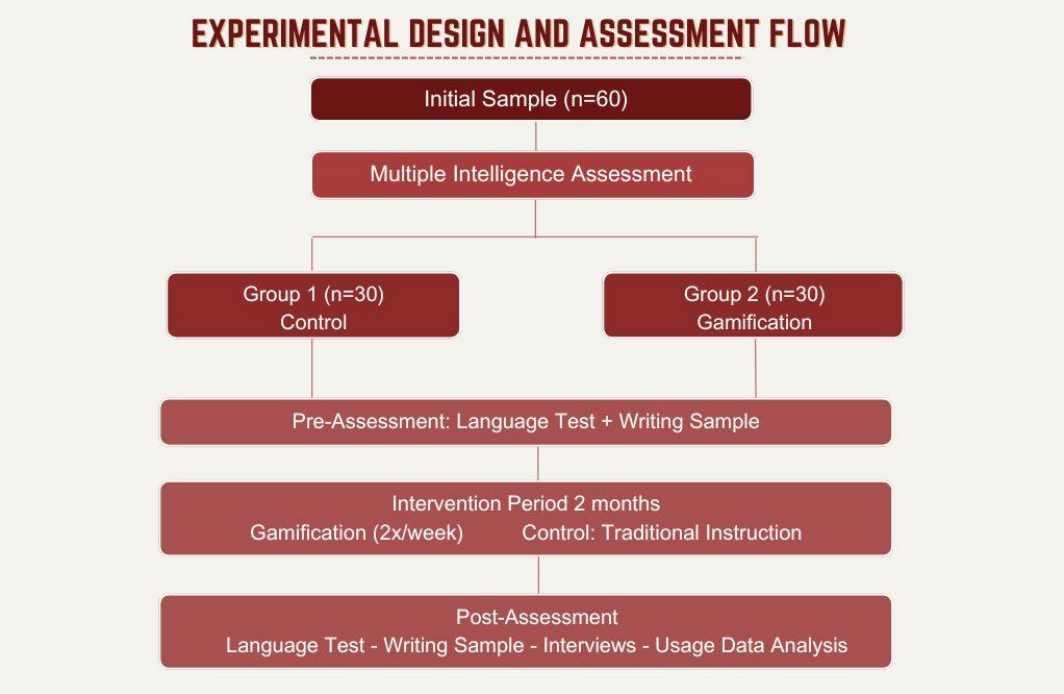
While MI theory provides the pedagogical framework, the characteristics of Generation Alpha learners determine how this framework should be implemented. Born into a digitally saturated world, they are tech-savvy, visually oriented, and prone to autonomy and collaboration in learning. They prefer metacognitive and social strategies, focusing on self-regulation and peer learning (Khirzani & Hashim, 2023). Digital fluency is defining generational identity, reshaping young learners' interactions and engagement. Understanding how technology supports language learning is crucial for ESL approaches, given Generation Alpha's natural learning behaviors and seamless integration of digital tools (Spaticchia, 2024).

Generation Alpha's digital nature necessitates the integration of technology into language learning. Today's tools use AI to create personalized, interactive learning experiences, adapt to individual needs and provide real-time feedback (Yousaf, Satti, & Khan, 2024). Combining AI with MI theory enhances engagement and inclusivity, aligning instruction with students' cognitive profiles (Eslit, 2023). Studies by (Spaticchia, 2024) highlight the impact of digital platforms, particularly AI, on ESL proficiency and Generation Alpha learners' perception of digital language learning, highlighting the fluid, learner-driven pathways and the power of technology in enhancing learning experiences.

The literature highlights the connection between multiple intelligences theory, Generation Alpha learners' characteristics, and the integration of digital tools in ESL education. MI theory offers a flexible framework for addressing learner diversity, while AI and other technologies enable real-time, tailored instruction. Understanding how digitally mediated MI approaches influence language proficiency and learning experiences is crucial for responsive and future-ready ESL practices in Lebanon.

3. Methodology

Figure 2 Experimental design and assessment flow



3.1 Research Design

This study employed a mixed-methods design, the study combined quantitative measures—including a test to detect the Grade 8 ESL students' multiple intelligences, and pre- and post-tests to evaluate their academic achievements before and after the interventions, in addition to a post-intervention survey to detect engagement with digitally mediated activities.

Furthermore, a structured observation sheet was used to gather qualitative data on student engagement, collaboration, and digital confidence. The sheet included five criteria, with space for open-ended notes describing observed behaviors. Observations were conducted by 30 students of the Experimental group during a 40-minute classroom activity conducted twice weekly over a 7-week period. Notes focused on behavioral indicators and contextual details, without using numerical ratings, to emphasize the qualitative nature of the data.

3.2 Participants and Ethical Consideration

Participants included sixty Grade 8 students from a private secondary school in Beirut. The experimental group n=30 learnt through digital tools ranging from language apps and gamified platforms to interactive storytelling applications, selected for their potential to engage different intelligences such as linguistic, musical, kinesthetic, and visual-spatial, while the controlled group n=30 received the traditional instruction – consisting of textbook-based lessons, teacher-led vocabulary presentations, and written grammar exercises typical of conventional ESL curricula. The participants were informed about the research objectives, procedures, and their voluntary participation, and their consent was obtained to meet ethical considerations.

3.3 Digital Tools and Their Validity and Reliability

One of the main tools was Howard Gardener's Multiple Intelligence questionnaire completed by the students of Group 1 (controlled) and Group 2 (Experimental) students to test their Multiple Intelligences as of linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, naturalist, and existential with Cronbach's Alpha = 0.841 > 0.6 showing its reliability.

Table 1. An overview of Howard Gardener's Multiple Intelligence survey for students

Intelligence Type	Statements
Word Smart (Linguistic)	• I like to read. • I enjoy word games like Scrabble and crossword puzzles. • Language and Social Studies are my best subjects. • I sometimes get into trouble for talking in class too much. • It's easy for me to write 50 words or more for journal. • I enjoy trying out tongue twisters and rhymes. • I like to listen to someone read a story aloud. • I can hear words in my head before I read, speak, or write them down. • I usually make A's in spelling. • It's easy for me to remember names.
Math Smart (Logical/Mathematical)	• I can easily add numbers in my head. • Math and Science are my best subjects. • I enjoy board games such as chess or checkers. • I like figuring out number puzzles or brainteasers. • I take things apart to see how they work. • Computer math games are fun! • I enjoy patterning games (e.g., what comes next?).I usually get the picture analogies right. • I like school activities to follow the same order each day.

Intelligence Type	Statements
Music Smart (Musical)	• I enjoy doing experiments. • I play a musical instrument or sing in a choir. • People have said I have a good singing voice. • I listen to music often. • I study better if music is playing. • I tap on my desk while I work. • I catch myself humming. • There is often a tune running through my head. • I know a song after hearing it once or twice. • It bothers me to hear unusual noises. • I automatically tap my feet or hands along with music.
People Smart (Interpersonal)	• I like to play games with others. • I have two or more “best” friends. • I’d rather work in a group than alone. • The best part of school is being with friends. • I have more than one favorite teacher. • I prefer team sports to solo sports. • I’d like to be a tutor. • I belong to a club. • I worry about my friends’ problems. • Friends ask me for help with problems.
Picture Smart (Visual/Spatial)	• I enjoy mazes and puzzles. • I see pictures in my head when I dream. • I prefer books with lots of pictures. • I like to watch TV or movies. • I doodle or draw often. • I like art activities. • Reading charts/maps/graphs is easy. • I enjoy LEGOS or building toys. • I notice mismatched clothes. • I check out drawing books from the library.
Body Smart (Bodily-Kinesthetic)	• I enjoy making things with clay or play dough. • I’m on a sports/dance/gymnastics team. • I fidget or tap my pencil. • It’s hard to sit still. • I love running, jumping, or dancing. • I like roller coasters. • I use my hands when talking. • I enjoy building/sewing projects. • I learn best by doing it. • I like to act things out.
Self-Smart (Intrapersonal)	• I like working alone. • I can describe my feelings. • I like myself.

Intelligence Type	Statements
	• Adults say I'm stubborn or strong-willed. • I like spending time alone. • I have a secret place. • I keep a journal or diary. • I have a hidden hobby. • I know my future goals. • I know my strengths and areas to improve.
Nature Smart (Naturalist)	• I have a collection of special things. • I like camping. • I'd like to live on a farm. • I love going to the zoo. • I remind my family to recycle. • I know the names of 10+ plants/trees. • I like planting and watching things grow. • I have a pet. • I like exploring nature. • I enjoy Discovery Channel programs.
Wondering Smart (Existential)	• I care about my role in the big picture. • I enjoy life's big questions. • Religion is important to me. • I enjoy art masterpieces. • I value relaxation/meditation. • I like breathtaking natural sites. • I enjoy reading philosophers. • Learning is easier when I see its value. • I wonder about other intelligent life forms. • History and ancient cultures give me perspective.

Henceforth various digital platforms and tools were utilized to facilitate learning, including interactive applications, online resources, and multimedia content that cater to the different multiple intelligences to the Group 2 the Experimental one while the Group 1 will follow the traditional teaching method. However, before the interventions the students sat for a pre-test aligned with the Common European Framework of Reference for Languages (CEFR) (Europe, 2020) A2 level which tested all four skills: Reading, Writing, Listening, and Speaking. Followed by the post-test after the interventions for the test-retest reliability and internal validity that can better establish cause-and-effect relationships between the digitally mediated instructional interventions and improvements in language proficiency and engagement.

To validate the CEFR-aligned pre- and post-tests, expert review was conducted by three experienced English language instructors to ensure alignment with A2-level "Can Do" descriptors. A pilot test was administered to a small group of students to evaluate item clarity, difficulty, and relevance. Based on the results and student feedback, several items were revised or removed.

Internal consistency was assessed using Cronbach's alpha, yielding a reliability coefficient of $\alpha = 0.87 > 0.6$, indicating reliability. While these steps support the test's validity, future research should include comparisons with standardized A2 assessments to further establish criterion-related validity.

Table 2. The digitally mediated lessons are based on different Multiple Intelligences.

Session 40 minutes	Target Intelligence	Digital Tool(s)	Activity Description
5 sessions	Linguistic	Book Creator	Students co-create an interactive storybook using Book Creator, practicing narrative tenses and descriptive vocabulary.
3 sessions	Visual-Spatial	Canva	Learners design a comic strip that illustrates an ESL dialogue, focusing on everyday situations (e.g., shopping, asking for directions).
2 sessions	Bodily-Kinesthetic	Kahoot! (with movement prompts)	Grammar scavenger hunt: Learners use AR clues or movement-based prompts to explore quantifiers or active/passive forms in context.
2 sessions	Interpersonal	Padlet/ Sway	Collaborative speaking task: Learners record short videos or post reflections discussing food preferences and giving opinions using sentence starters.
2 sessions	Intrapersonal	Google Docs	Students write a personal language diary entry reflecting on their learning journey, goals, and vocabulary they find personally meaningful.

These tools were selected based on three criteria: accessibility in Lebanese schools, minimal training requirements for teachers, and clear alignment with specific intelligence types as defined by Gardner's framework. All digital activities were designed to function on basic desktop computers tablets or smartphones with standard internet connectivity, recognizing the technology constraints in Lebanese educational settings and the implementation required approximately 2-3 hours of teacher preparation per session, suggesting this approach is feasible for typical classroom teachers without extensive technical training.

During the lessons descriptive observation notes were taken to follow the students' perceptions and motivations. Ending the study with a post-intervention survey for the students who completed a Likert-

scale questionnaire (1 = Strongly Disagree till 5 = Strongly Agree) detecting the learners' motivation, participation, and skill development, particularly through the utilization of their favorite digital mediated sessions.

Table 3. Descriptive Observation Notes Overview

Criteria	Descriptive Observation Notes
Learner is actively participating in the activity	
Learner shows enjoyment (smiling, asking questions)	
Learner collaborates with peers (in group tasks)	
Learner demonstrates understanding of the task	
Learner uses digital tool confidently	

Table 4. An overview of Student Survey (Post-Intervention)

Engagement	• I enjoyed the digital activities during English class. • I felt more motivated to learn English with the digital tools. • The activities helped me learn in fun and meaningful way. • I liked trying new apps and websites in our lessons.
Multiple Intelligences	
Linguistic Intelligence (Session 1)	• I enjoyed creating an interactive storybook using Book Creator. • I improved my use of narrative tenses and descriptive vocabulary through the story-making activity.
Visual-Spatial Intelligence (Session 2)	• Designing a comic strip helped me understand ESL dialogue better. • Using visual tools like Canva or storyboard that made learning more creative for me.
Bodily- Kinesthetic Intelligence (Session 3)	• I enjoyed the movement-based grammar scavenger hunt using AR or Kahoot. • Physical activities helped me stay focused and learn grammar better.
Interpersonal Intelligence (Session 4)	• I enjoyed collaborating with classmates using Padlet. • Sharing my opinions about food and giving feedback helped improve my speaking skills.
Intrapersonal Intelligence (Session 5)	• Writing personal reflections in a language diary helped me think about my learning. • Using Google Docs helped me set goals and track vocabulary I find meaningful. • I think the activities matched how I learn best. • I prefer learning English through games, music, stories, drawing, or movement.
Self-Reflection	• I learned new English words or skills during the lessons. • I felt more confident using English after activities. • I would like to use more digital tools in future ESL lessons. • These activities helped me discover which types of learning work best for me.

3.4 Limitations

This study has several limitations that affect the generalizability and validity of its findings. Focusing exclusively on Grade 8 students who represent only a narrow segment of Generation Alpha may not fully capture the broader characteristics, experiences, or perspectives of the generation as a whole. Also being conducted in a single private school, the results may not reflect the broader Lebanese educational context, particularly public schools with fewer resources. The short intervention period may not be sufficient for lasting impact, and the absence of follow-up limits insight into long-term effects.

Furthermore, the study did not fully account for the multilingual and cultural context of Lebanese learners, nor did it address how Generation Alpha traits might differ regionally, potentially affecting the applicability of MI theory and digital interventions.

4. Results

4.1 Quantitative Results

4.1.1 Pre and Post Test

The primary finding of this study was a statistically significant improvement in English language proficiency for the experimental group ($t = -2.858$, $p = 0.006$), while the control group showed no significant change ($p = 0.753$).

Table 5. Pre and Post Test Independent t-test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pre-test	Equal variances assumed	.009	.927	-.316	58	.753	-.1067	.3372	-.7816	.5683

	Equal variances not assumed			-.316	56.372	.753	-.1067	.3372	-.7820	.5687
Post-test	Equal variances assumed	2.104	.152	-2.858	58	.006	-.9400	.3288	-1.5983	-.2817
	Equal variances not assumed			-2.858	50.955	.006	-.9400	.3288	-1.6002	-.2798

Table 6. Significant difference of the Experimental pre-post test

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	Control	30	7.373	1.4125	.2579
	Experimental	30	7.480	1.1897	.2172
Post-test	Control	30	7.323	1.4917	.2724
	Experimental	30	8.263	1.0094	.1843

This table shows the significant difference in the Experimental group's pre and post test results:

Pre-test Mean = 7.480 and Post-test Mean = 8.263. This represents a meaningful improvement of 0.78 points on the assessment scale, equivalent to approximately 10.47% improvement in overall English proficiency.

4.1.2 Descriptive Statistics

Table 7. Descriptive Statistics of Multiple Intelligences

Statistics

		Linguistic	Logical	Musical	Interpersonal	Visual-Spatial	Bodily-Kinesthetic	Intrapersonal	Naturalist	Existential
N	Valid	60	60	60	60	60	60	60	60	60
	Missing	0	0	0	0	0	0	0	0	0
Mean		4.800	4.650	4.600	7.450	5.717	6.033	5.383	4.033	5.517
Std. Deviation		2.0236	2.3349	2.8296	1.7985	2.2556	2.4699	2.2481	2.4354	2.5478
Minimum		1.0	.0	.0	2.0	1.0	.0	1.0	.0	.0
Maximum		9.0	10.0	10.0	10.0	10.0	10.0	10.0	9.0	10.0

This table shows that the dispersion is high with almost all the intelligences due to the SD results meaning that the data values are spread out widely from the average mean. In other words, there is a lot of variability in the data set. The difference between the lowest and highest values is large.

4.1.3 Correlation Analysis

Table 8. Correlation Results

Intelligence Pair	r	p-value	Strength	Interpretation
Linguistic – Intrapersonal	.557**	.000	Strong	Students high in linguistic intelligence also tend to be high in intrapersonal intelligence.
Musical – Bodily-Kinesthetic	.645**	.000	Very strong	Those high in musical intelligence are also strongly kinesthetic.
Intrapersonal – Existential	.580**	.000	Strong	Those who are introspective also show existential awareness.
Visual-Spatial – Bodily-Kinesthetic	.555**	.000	Strong	A visual learner may also prefer hands-on learning.
Naturalist – Existential	.459**	.000	Moderate-strong	A meaningful link between nature awareness and existential thinking.
Musical – Intrapersonal	.517**	.000	Strong	Musical intelligence is linked to self-awareness.

The Pearson correlation analysis revealed several significant positive relationships among the different types of intelligences assessed. Notably, the strongest correlation was observed between Musical and Bodily-Kinesthetic intelligences ($r = 0.65$, $p < .001$), suggesting a strong link between musical ability and physical expression. Other strong correlations included Linguistic and Intrapersonal ($r = 0.56$), Intrapersonal and Existential ($r = 0.58$), and Visual-Spatial and Bodily-Kinesthetic ($r = 0.56$), all indicating meaningful associations between verbal, reflective, spatial, and physical intelligences.

Additionally, Musical intelligence showed strong positive correlations with both Intrapersonal ($r = 0.52$) and Visual-Spatial intelligences ($r = 0.47$), while Linguistic intelligence was also strongly related to Existential intelligence ($r = 0.50$). The relationship between Naturalist and Existential ($r = 0.46$) and Interpersonal and Naturalist intelligences ($r = 0.48$) further highlights connections between social, environmental, and philosophical domains.

Finally, a moderate but statistically significant correlation was found between Logical and Visual-Spatial intelligences ($r = 0.43$, $p = .001$), indicating that students with logical strengths also tend to exhibit spatial reasoning skills.

Overall, the results suggest that many intelligences are interrelated, with particularly strong ties among musical, bodily-kinesthetic, intrapersonal, and existential intelligences.

4.1.4 Cluster Analysis

Table 9. Clustering of the Intelligences

Final Cluster Centers

	Cluster		
	1	2	3
Zscore: Linguistic	.75024	-.03594	-.98217
Zscore: Logical	.09150	.30564	-.54607
Zscore: Musical	.43051	.28594	-.98511
Zscore: Interpersonal	.53326	.00253	-.73671
Zscore: Visual-Spatial	.50849	.28682	-1.09356
Zscore: Bodily-Kinesthetic	.64902	.04171	-.94976
Zscore: Intrapersonal	.80000	-.25139	-.75434
Zscore: Naturalist	.84487	-.46163	-.52695
Zscore: Existential	.95686	-.57745	-.52169

Cluster 1: Holistic Learners

- Strong across many intelligences (especially Existential, Naturalist, Intrapersonal, Bodily-Kinesthetic, Linguistic)
- These learners are well-rounded, reflective, and physically + socially + intellectually engaged

Cluster 2: Applied Learners

- Moderate with slight strengths in Logical, Musical, and Visual-Spatial intelligences
- Lower in reflective/self-awareness traits (Intrapersonal, Existential, Naturalist)
- These learners are practical, task-oriented, and moderately creative

Cluster 3: Silent Potentials

- Low across almost all intelligences
- May indicate disengagement, low confidence, or different learning preferences
- These students might benefit from more support, motivation, or alternative methods

4.1.5 Student Survey (Post-Intervention)

The survey showed reliable internal consistency with Cronbach's Alpha $\alpha = 0.793 > 0.6$.

Table 10. Descriptive analysis of the Engagement Scores

No table of figures entries found.

Engagement Score		
N	Valid	30
	Missing	0
Mean		3.9000
Median		4.0000
Std. Deviation		.73285
Minimum		2.25
Maximum		5.00

This indicates that most students liked and engaged positively with the digitally mediated ESL sessions.

Mean = 3.9 which is above average based on the Likert scale 1 till 5.

Median = 4 (50% rated above 4, 50% below 4)

SD = 0.732 < 1.3 the dispersion is low.

Maximum rated 5.

Minimum rated 2.25.

Table 11. Report on the preferred tools used in an ESL classroom

Report

	Liguistic Score	VisualSpatial Score	BodilyKinesthetic Score	Interpersonal Score	Intrapersonal Score
Mean	3.4833	3.8000	3.6500	3.8833	3.8917
N	30	30	30	30	30
Std. Deviation	.60861	.67722	.74452	.75067	.55197

Students clearly favored Intrapersonal-style learning (M=3.89, SD=0.551) using personal expression, creativity, and reflection.

Collaborative tools (Interpersonal) also resonated well (M=3.883, SD=0.75)

Linguistic tasks (story writing) received the lowest preference (M=3.483, SD=0.608), suggesting traditional text-heavy activities were less engaging for this group.

4.2 Qualitative Results

This data was collected based on the observation notes taken during the interventions.

4.2.1 Theme 1: Behavioral Engagement

Behavioral engagement was evident in 80% of students, who consistently remained on-task and participated actively. For example, Student A leaned forward, raised their hand frequently, and asked to demonstrate the tool to the class, indicating high levels of voluntary participation.

4.2.2 Theme 2: Emotional Engagement and Motivation

Many students showed signs of enjoyment and intrinsic motivation. Smiles, laughter, and enthusiastic questioning were common, for example, student D smiled and said, ‘Can we do this again tomorrow?’ after completing the activity. Another example, student J asked if they could try a harder version of the task.

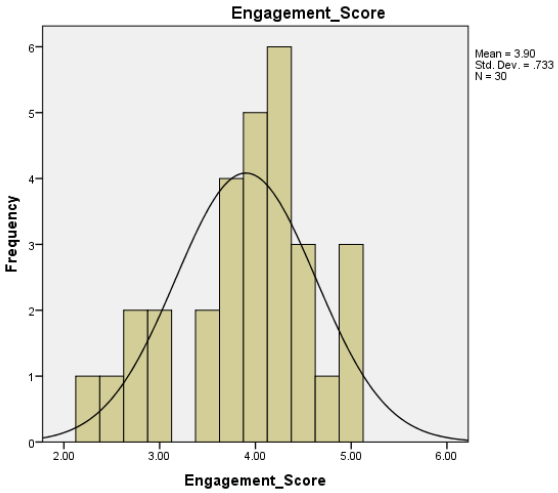
4.2.3 Theme 3: Social Engagement

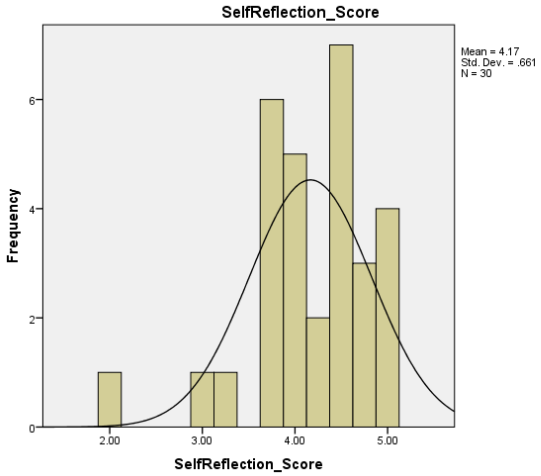
Peer collaboration was observed among over half of the students. Group tasks prompted interaction, sharing, and peer teaching, for example, student F helped a peer navigate a digital tool and suggested trying a different approach.

4.2.4 Theme 4: Confidence with Digital Tools

Around two-thirds of the students used the digital tools independently and confidently. A few required initial guidance but adapted quickly, for example, student M explored additional features of the app and showed others how to use them.

4.3 Qualitative and Quantitative





These qualitative observations are supported by the quantitative survey results, the histograms revealed above-average scores in both self-reflection and engagement following the intervention. Specifically, the mean self-reflection score (M = 4.17, SD = 0.66) was notably high and consistent, suggesting that the activity was broadly perceived as intellectually stimulating. In comparison, the engagement score (M = 3.90, SD = 0.73) exhibited greater variability, indicating a range of responses—from highly engaged to moderately disengaged. These results collectively suggest that the intervention had a positive effect, fostering high levels of motivation and reflective thinking among students across multiple dimensions.

5. Discussion

The study demonstrates that digitally mediated Multiple Intelligences instruction can significantly improve English language proficiency and student engagement for Generation Alpha learners in Lebanon. The results showed strengths in visual-spatial, interpersonal, and bodily-kinesthetic domains, and post-test scores improved significantly. Students reported high levels of behavioral and emotional engagement, confirming previous research showing measurable gains in language learning and engagement through digital interventions. For instance, (Han, Alibakhshi, Lu, & Labbafi, 2024) found mixed-methods studies reported significant improvements in EFL learners' engagement following digital communication activities, while (Salih & Omar, 2024) observed that clustered digital materials significantly boosted speaking-related engagement in EFL contexts.

The qualitative analysis align with Self-Determination Theory (Deci & Ryan, 2000) (Deci & Ryan, 2012), which posits that motivation is enhanced when learners experience autonomy, competence, and relatedness. Students demonstrated autonomy through voluntary participation and exploration of digital tools, demonstrating intrinsic motivation. They demonstrated competence by completing tasks independently and supporting peers, indicating mastery. Collaborative interactions and shared enthusiasm created a positive learning environment.

The effectiveness of digital MI activities appears to stem from three key factors: (1) alignment with Generation Alpha's preference for interactive technology, (2) accommodation of diverse learning strengths through varied modalities, and (3) support for autonomy through student choice in creative expression.

These observations suggest that when classroom activities support students' psychological needs, engagement and motivation are strengthened. This supports prior research emphasizing the importance of need-supportive teaching (Niemiec & Ryan, 2009). Designing tasks that allow for choice, challenge, and collaboration can foster deeper engagement and more meaningful learning experiences.

Overall, the findings suggest that MI-based, digitally enhanced instruction, supported by both quantitative gains and qualitative engagement, offers a robust strategy for enhancing ESL learning. Future studies should explore longitudinal effects and involve student collaboration in designing digital tasks.

6. Conclusion

The study shows that integrating Multiple Intelligences theory with digital instruction can significantly improve academic achievement and engagement among Grade 8 ESL students, with significant improvements in post-test scores, suggesting that tailoring instruction to students' MI profiles can support learning outcomes (Hajis & Othman, 2024).

Qualitative observations and post-intervention surveys further highlighted increased student motivation and engagement. Behaviors such as active participation, collaboration, and enthusiasm were prevalent, aligning with the dimensions of behavioral, emotional, and cognitive engagement as outlined by (Fredricks, Blumenfeld, & Paris, 2004). The study indicates that instructional strategies

that align with students' innate intelligences and offer autonomy, competence, and relatedness significantly boost engagement and motivation.

From the perspective of Self-Determination Theory, the intervention satisfied students' basic psychological needs. The autonomy to choose tasks, the competence gained through mastering digital tools, and the relatedness fostered by collaborative activities contributed to heightened intrinsic motivation (Wei, 2025). These results are consistent with recent research emphasizing the importance of need-supportive teaching in fostering student motivation and well-being (Wang & all, 2024).

For ESL educators working with Generation Alpha learners, these findings suggest three practical strategies: (1) incorporate digital tools that allow creative expression (intrapersonal intelligence), (2) design collaborative activities using accessible platforms like Padlet (interpersonal intelligence), and (3) move beyond traditional text-heavy approaches toward multimodal activities that engage visual, kinesthetic, and musical intelligences.

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