

Gamified EFL Instruction: Empirical Evidence for Enhanced Language Proficiency, Learner Motivation, and Idealized Bilingual Identity

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Abstract: *In recent years, the integration of gamification into mobile-assisted language learning (MALL) has gained prominence, driven by technological advancements and the global popularity of platforms like Duolingo. These tools leverage game mechanics—such as points, rewards, and interactive challenges—to enhance engagement and motivation in language acquisition. Grounded in Csikszentmihalyi’s (2008) Flow Theory, which posited that optimal learning occurred when challenges aligned with learners’ skills, gamification aims to create immersive, enjoyable experiences that foster sustained participation. Despite growing evidence of gamification’s efficacy in improving language outcomes, limited research holistically examined its impact on psychological constructs such as motivation and the ideal L2 self, which were critical to fostering long-term motivation and self-perception in EFL contexts. This mixed-methods study addresses this gap by investigating how digital gamified language learning, via a mobile application, influences EFL learners’ language achievement, motivation, and idealized bilingual identity. The research involved 36 Chinese primary school learners divided into digital and non-digital gamified instruction groups over four months. Quantitative assessments of language proficiency, motivation and ideal L2 self were complemented by qualitative insights from semi-structured interviews. Results revealed that the digital gamified group significantly outperformed their non-digital counterparts in language achievement and ideal L2 self development, while also reporting heightened FLE. Qualitative analysis highlighted learners’ positive perceptions of gamification, emphasizing enhanced engagement, reduced anxiety, and collaborative learning opportunities. However, critiques emerged regarding limited vocabulary depth and insufficient interactive feedback. The findings aligned with the Self-Determination Theory, illustrating how gamification fulfills psychological needs for autonomy, competence, and relatedness, thereby fostering intrinsic motivation and flow states. Pedagogically, the study advocated for gamified tools as catalysts for learner-centric environments, though it underscored the necessity for richer content and adaptive feedback mechanisms. Limitations, including a small sample size and restricted qualitative scope, call for broader future research to generalize findings. This study bridged theoretical and practical gaps, demonstrating digital gamification’s potential to transform EFL instruction by merging enjoyment with efficacy, while offering actionable insights for educators, learners, and app developers to optimize language learning ecosystems.*

Keywords: Gamification, Flow Theory, EFL instruction, Foreign language achievement, Learning motivation, Ideal L2 self.

1. Introduction

In recent years, technological advancements have ensured various language learning application (APP) to make their appearance, which have been prevalent among language learners worldwide (Boudadi & Gutiérrez-Colon, 2020; Jeon, 2022). For instance, Duolingo has been said to be one of the most significant and successful mobile learning applications in the contexts of second language learning (SLL) and foreign language learning (FLL) (Huynh et al., 2018). The unconstrained access and gamified affordance assure its users’ success in English learning (Van Roy & Zaman, 2019). The affordance of this application is frequently described as a remarkable example of gamification in mobile-assisted language learning (MALL), which consists of inclusive game-based learning activities such as the combination of students ranking with non-game contexts so as to foster students’ language learning and address related problems (Hanus & Fox, 2015).

Gamified affordance of mobile applications have played a salient role in facilitating language acquisition and achievement. According to Kazu and Kuvvetli (2023), language achievement refers to learner’s English proficiency levels that can be reached through a series of interactive language learning activities. Specifically speaking, it includes both developed language learning skills and subskills, and even heightened comprehensive proficiency in target language (TL). Plenty of studies have verified the

effectiveness of mobile applications’ affordance in boosting learners’ learning achievement. For example, Loewen et al. (2019) have conducted a research to identify the positive correlation between gamified affordances and learning achievement. Su and Zou (2022) also confirm the findings of the former two researchers. However, with gamified mobile application gaining increasingly popularity because of their gamification affordance, further research is necessary to be conducted in a bid to investigate their role in English language learning.

Despite the positive emotions significantly influence how excellent students acquire language knowledge, it is also of great essence to realize how positive psychology and students’ gamified learning outcomes are favorably interrelated. In terms of positive psychology, he argued that foreign language learning motivation can be witnessed as one aspect, which enhances students’ enthusiasm and involvement in group-based language learning activities. In this research, foreign language learning motivation comprises happiness and satisfaction that students can have in the process of interacting with peers using digital gamified language learning affordance. Therefore, by probing into the relationship between gamified language learning activities and foreign language learning motivation, we can come to realize the process of digital gamified affordance in giving rise to a comprehensive language learning environment.

Moreover, the ideal second language (L2) self is considered as

the other element of positive psychology, being a distinctive L2 aspect of students' ideal self to strengthen motivation and achievement. In this paper, ideal L2 self comprises students' visionary images of themselves as proficient language learner of target language. It also includes the enthusiasm that drives students to make a progress in language acquisition. From this viewpoint, through clarifying the interrelation between digital gamification and the development of EFL learners' ideal L2 self, it becomes easier to elucidate how digital gamification affordance contributes to students' learning motivation and self-perception.

Resonating with the digital gamification research scope, a majority of research shifts their attention to initially and quantitatively reexamine the role in digital gamified language learning activities in EFL language achievement, this paper will underline more stress on qualitatively soundering EFL students' attitudes and opinions toward the role of digital gamified learning activities in enhancing their English language learning abilities.

2. Literature Review and Related Concepts

2.1 Theoretical Framework

The theoretical framework of this paper is the Flow Theory put forward by Csikszentmihalyi (2011). He argued that "flow" referred to a kind of mental state in which students were absolutely dedicated to an activity, which made them energetic in this classroom activity (Csikszentmihalyi, 2011). This theory underpined the optimal experience of students with diverse cultural backgrounds that comprised of language acquisition. According to Csikszentmihalyi (2011), there were some distinguished features among all flow-inducing activities, such as the complexity of task, the combination of action and awareness, the clarity of objectives and feedback, the paradox of control, the lack of self-consciousness and autotelic experience. Among these characteristics, some characteristics were sure to take place, but not all of them.

Plenty of research have verified the interconnection between gamification and flow. Specifically speaking, it was obvious that gamification was a stage that allowed the blending of action and awareness. Besides, due to the fact that gamification can provide precise objectives and feedback, it can permit students to obtain clear direction and be aware that whether they are effectively performing activities. With regard to the feeling of control, in gamification circumstances, students were prone to experience challenging circumstances that require them to utilize control to overcome the current difficulties. At this time, the sense of self may turn less when students were engaged in a gamified task. Therefore, Csikszentmihalyi (2011) called this process as the lack of self-consciousness, which can be witnessed as a enjoyable and satisfying experience. Constructed on the abandonment of self-consciousness, video games in gamification were believed to make students lose track of time when they were engrossed in gamified activities (Csikszentmihalyi, 2011). This process must be an autotelic experience for flow to exist. Autotelic was a kind of actions that was performed merely out of personal enthusiasm. Games belonged to autotelic experience because they are performed only for fun rather than a method to accomplish an objective. Furthermore,

Csikszentmihalyi (2011) argued that flow experience were featured by an equivalence between potential challenges and perceived skills of the tasks. When the potential challenges can be linked with the perceived skills of a person, the person was prone to encounter flow, generating a high level of motivation, enjoyment, and involvement in the activity. In contrast, if the complexity of a task was too low, the person may become tedious and withdraw from the activity.

Moreover, many studies had been further used to substantiate the association among language acquisition, gamification and the flow. According to Boudadi and Gutiérrez-Colon (2020), they employed the Flow Theory to identify the essence of gamified language learning activity in fostering EFL students' engagement, motivation, and enjoyment, leading to improved language achievement, FLE, and ideal L2 self. The Flow Theory was allowed in both digital gamified activities and non-digital gamified classes, which facilitates students to perform digital or non-digital activities both individually and collaboratively.

2.2 Mobile Applications and Gamification

Gamification refers to the combination of game-like supplementary learning activities with non-game contexts to improve students' learning experience. Unlike game-based learning activities that are inherently educational and designed to teach specific language skills, gamification provides a wide range of motivating activities that leverage students' language proficiency and confidence. students' behaviors, learning engagement and motivation could also be enhanced as a result of gamification perspective being added to MALL-based applications.

Concerning language learning applications, such as Duolingo application, it has some gamification components such as point systems, rewards, and other motivation affordances that make students devoted. The lesson structure is established based on preset themes that briefly explain some grammatical structures and cultural ideas. In addition, the lesson also primarily offers new lexicon and training exercises. Spelling, translation, and multiple choice word identification activities are accessible to examine students' language learning improvement. Therefore, based on the gamification components and lesson structures on the language learning applications, students are able to conduct their personalized learning through everyday objectives and experience marks, comments and feedbacks, and the sharing of knowledge such as forums and discussion activities.

Several studies have explored the influences of digital gamified activities with related affordances on contributing to language achievements. Su and Zhou (2022) probed into the impacts of digital gamified learning on language achievement among beginners, intermediate, and advanced students. The findings of this research indicated that the majority of students perceived a positive attitude towards learning experience, which reinforced language acquisition. Apart from the significant relation between digital gamified activities and language achievements, Loewen et al. (2019) also discovered a moderate bond between learning progress and time spent on gamified language activities. In terms of learner's devotion to digital gamified language activities, García Botero et al. (2019)

compared the effects of digital gamified language activities that were during the class time and outside the class. The results demonstrated that students are more active outside the class. From the author's viewpoint, this result reflected that the importance of environment in which students were encouraged to assume ownership and responsibility for their learning.

2.3 Ideal L2 Self

According to Dörnyei (2009), ideal L2 self is a another positive emotion. It is conceptualized as a positive self-image that students desire to realize in relation to language acquisition. Ideal L2 self is a kind of potent stimulation that narrows the gap between students' current levels of language proficiency and their future ambitions in language learning. Dörnyei and Chan (2013) further stated that those highly-motivated students were easily to have higher and notable L2 identity. They may be able to appreciate their language studies, which can capitalize the contributions of the ideal L2 and FLE. Some studies had underlined the impacts of L2 identity constructions on diversified variables of language students. In line with Adolphs et al. (2019), they investigated integrating technology to show ideal L2 self. Through conducting semi-structured interviews, 3D animations were found to possess the ability to offer the greatest method for the movement of facial characteristics and further development in facial overlay produced positive outcomes. The precise depictions of the ideal L2 self indicated an early instructions for the occurrence of the content that can be applied in the following technology-based activities. Furthermore, Oz (2015) got an insight into the connection between the ideal L2 self and intercultural communication competence. Through giving out relevevant questionnaires, the results displayed cordiality between these two sides. In this interconnection, gender also played a mediating role between these two sides.

The literature review shows digital gamified language learning activities enhance EFL students' language achievement (Loewen et al., 2019; Pham & Pham, 2022; Su & Zou, 2022), and FLE and ideal L2 self benefit EFL students' language achievement in online settings (Adolphs et al., 2018; Magid & Chan, 2012; Zhang et al., 2021; Zheng & Zhou, 2023). Yet, there's a lack of systematic research on the effects of digital gamified language learning on EFL learners' language achievement, FLE, and ideal L2 self.

3. The Rationale for the Research Questions in the Study

Existing literature seperately demonstrates that digital gamified language learning activities can enhance English students' language achievement (Loewen et al., 2019; Pham & Pham, 2022; Su & Zou, 2022), while foreign language enjoyment (FLE) and ideal L2 self positively influence online language learning outcomes (Adolphs et al., 2018; Magid & Chan, 2012; Zhang et al., 2021; Zheng & Zhou, 2023). However, integrative and systematic investigations into the effects of digital gamified language learning on EFL students' language achievement, FLE, and ideal L2 self remain scarce. To narrow this research gap in the literature, the author will be commenced with examining how digital gamified language learning using a mobile application gamified affordances

affected the language achievement, FLE, and ideal L2 self of EFL students. Second, to clarify the research's investigations, the paper will further qualitatively explored the students' attitudes and perceptions towards digital gamified language learning using the gamified affordances. Therefore, the research questions of this paper are put forward:

Q1: Are there any significant differences between digital and non-digital gamified language learning activities in improving EFL students' language achievement, FLE, and ideal L2 self?

Q2: How do EFL students consider the impact of digital gamified language learning activities on their language achievement, FLE, and ideal L2 self?

3.1 Research Methods

This study employed a mixed-method to respond to the research enquiries. The sequential explanatory design of mixed methods, as employed by Creswell et al. (2003), was used to obtained and examine the quantitative and qualitative data. First, quantitative data were collected and analysed to examine the students' language achievement, FLE, and ideal L2 self. The next step was to collect and analyse qualitative data to support the quantitative results and provide more explanations for the findings. Hence, the author conducted qualitative data collection and analysis with the group who were better concerning language achievement, FLE, and ideal L2 self to clarify their comprehensive performance.

3.2 Research Participants

A free additional course for this study was held in a primary school in Hubei, China. A total of 36 beginners who were in grade four had been voluntarily engaged in the free course. The participants were equally divided into two groups, one of which was the digital group, and the other of which was the non-digital group. The whole research lasted for 4 months. All the students mentioned that they had not previously used digital gamified affordances before. The author of this research served as course instructors in both groups because she had accumulated experiences in using various online platforms to teach English.

3.3 Research Instruments

The research paper utilized the OQPT test to make participants' language improvement more measurable. The lesson delivered and mobile application's affordances and non-digital class were functioned as the foundation of the test. Comprising of 50 items, the test included fill-in-the-blank vocabulary test, multiple-choice vocabulary test and multiple-choice grammar test. As each item got two points, students' scores ranged from 0 to 100.

In addition, the paper also used FLE scale proposed by Jiang and Dewaele (2019). The FLE scale was to obtain students' perceptions and attitudes toward integrating digital / non-digital gamified affordances in English classes. It contained a 10 five-point Likert-scale items ranging from 5 (totally agree) to 0 (totally disagree). According to Jiang and Dewaele (2019), this scale can be inclusive in terms of public and private enjoyment.

3.4 Data Collection Process

The study lasted for 4 months, two sessions per day, each session taking about 45 minutes. The language achievement test, the FLE and ideal L2 scale were performed at the beginning and last session serving as the data sources of pre- and posttests. Some participants had expressed their willingness to be interviewed in order to help the researcher qualitatively explore the perceptions and attitudes toward incorporating digital / non-digital gamified affordances in English classes. In accordance with Boyatzis (1998), the author used thematic analysis to qualitatively decode interview transcripts, which can comprehensively help the author realize notable factors related to opinions and attitudes. After that, the author resorted to divide the qualitative research data into different groups according to their overarching themes. At last, the author labelled each group for identifying inner connections and differences, which deepened the author's understanding of students' experiences and emotions.

4. Research Results

4.1 Quantitative Statistics

Both the quantitative research method and the qualitative method were used to examine ELF students' pre- and posttest scores of language achievements, learning motivation, and ideal L2 self identity. According to the table 1, the mean scores of students' pretests are slightly different from those of posttests. Specifically speaking, students' mean score of pretests was 25.12 while their mean score of posttests was 38.30. In addition, there also existed some differences in learner's language achievements and ideal L2 self between the digital gamified classes and the non-digital gamified classes, which can be shown in table 2 and table 3.

Table 1: Quantitative statistics indicating learner's pretest and posttest makers of language achievements and ideal L2 self.

	Group	N	Mean	Std. deviation	Std. error mean
Pre-language achievement	Digital	18	23.14	7.25	1.68
	Non-digital	18	21.64	6.50	1.58
Post-language achievement	Digital	18	38.30	7.60	1.74
	Non-digital	18	30.59	6.14	1.50
Pre-ideal L2 self	Digital	18	3.84	0.81	0.18
	Non-digital	18	3.55	0.73	0.16
Post-ideal L2 self	Digital	18	4.39	0.79	0.16
	Non-digital	18	3.86	0.62	0.15

Table 2: One-way ANCOVA, examining the differences between the two groups' language achievement

Source	Df	Mean Square	F	Partial eta squared
Pre-FLE	1	1159.96	79.95	0.70
Groups	1	368.50	25.40	0.43

Table 3: One-way ANCOVA, examining the differences between the two groups' ideal L2 self

Source	Df	Mean Square	F	Partial eta squared
Pre-FLE	1	9.40	39.60	0.55
Groups	1	1.03	4.30	0.11

4.2 Qualitative Statistics

To substantiate the quantitative statistics and identify inner logic why digital students outperformed than those non-digital students from the perspectives of language

achievements, FLE and ideal L2 self, deep semi-structured interviews were necessary with some digital students. Through decoding the qualitative statistics, the author divided the statistics into several categories according to different themes, which are shown below.

Enhancing students' learning conditions in language acquisition	Improving language enthusiasm and happiness
	Leveraging positive aspiration in language learning
Empowering collaborative learning	Reducing anxiety and depression in language learning
	Designing collaborative learning activities
Coping with language obstacles	Supporting autonomous language learning
	Having limited access to language environment
	Lacking interactive learning participation

Figure 1 illustrated the findings, revealing two primary categories comprising five themes that explore EFL students' favorable views and attitudes toward digital gamification. Additionally, one category with two themes emerged regarding learners' critical perspectives on such tools. The first category centered on how digital gamification enhances learners' well-being in language education by establishing an environment that promotes positive emotions—including heightened motivation, sustained engagement, and a sense of enjoyment—while also cultivating an encouraging learning atmosphere for gamified language activities.

The inaugural theme under this category underscored EFL students' active participation and drive in gamified digital language education. Introducing game-inspired mechanics into online learning platforms cultivated a collaborative and stimulating setting. Participants expressed that the playful digital framework enhanced the enjoyment of learning English, sparking curiosity and propelling their commitment to consistently practice and refine their language competencies.

Excerpt 1: "I find digital gamification tools particularly effective because they transform English learning into an immersive, game-like experience. The interactive design fuels my enthusiasm to consistently practice and refine my language proficiency, making skill development feel both engaging and rewarding."

Building on these insights, it can be said that incorporating gamified elements significantly enhanced students' engagement with language tasks and reshaped their perceptions of skill development. This approach not only bolstered their motivation but also transformed the learning process into a more enjoyable endeavor. The subsequent theme within this category focused on students' constructive outlook toward English language acquisition. Participants emphasized that interactive gamification features motivated them to cultivate a proactive approach to studying English, while simultaneously reinforcing their self-assurance in their linguistic capabilities. As L2 explained:

Excerpt 2: "Prior to engaging with interactive game-based language applications, I had little interest in studying English. However, since incorporating these digital gamification tools into my routine, my perspective has shifted entirely. I now approach language learning with enthusiasm and have gained significant confidence in my ability to communicate in and comprehend English effectively."

This exemplified the impact of game-based digital learning in not only cultivating favorable outlooks and mindsets but also bolstering learners' self-assurance during language practice. Together, these factors nurtured a supportive and growth-oriented educational setting. Additionally, participants underscored how digitally gamified features mitigated apprehension tied to English acquisition, emphasizing that such activities turned language practice into an engaging endeavor free from traditional stressors. Many noted that the playful, interactive nature of these tools eased tension and rendered skill development in English both approachable and intrinsically motivating. Excerpt 3 asserted that:

Excerpt 3: "Prior to integrating digital gamification tools into my learning routine, I often felt anxious during classroom English speaking exercises. However, since engaging with these interactive methods, I approach language practice with increased confidence and enjoyment, as the playful framework has reduced my stress and made skill-building feel more accessible."

It can therefore be contended that integrating digital gamification not only enhanced engagement and enjoyment in interactive language learning but also proved instrumental as a strategy for alleviating the apprehension commonly linked to language practice. This shift fostered a supportive and comfortable educational atmosphere for EFL students, further amplifying their motivation. Subsequent analysis highlighted the collaborative dynamics and empowerment inherent to gamified platforms, which played a pivotal role in advancing students' linguistic competence. Within this framework, participants frequently cited collaborative gamified language tasks as a cornerstone of their progress. For instance, students emphasized that leveraging interactive gamified features to work with peers enabled them to exchange practical methods and insights for refining language skills. Excerpt 4, for instance, said that:

Excerpt 4: Collaborating with peers through gamified digital platforms has enriched my learning experience, as we actively exchange strategies and offer mutual support, creating a collaborative environment that accelerates our collective language development.

This underscores the critical role of collaborative educational approaches, enabled by digital gamification, in promoting a dynamic and participatory language acquisition environment. Students also emphasized the unique capacity of interactive gamified features to enhance their self-directed learning journeys. Many noted that these digital game-based tools provided flexibility to progress at their preferred pace while aligning with their individual linguistic needs, thereby instilling a stronger sense of agency over their development. As excerpt 5 explained:

Excerpt 5: The self-paced nature of digital gamification tools allows me to tailor my learning journey to align with my personal objectives, fostering a heightened sense of agency over my educational progress.

The analysis posited that gamified elements acted as catalysts for cultivating autonomy, empowering students to direct their

own learning trajectories. This observation further highlighted the critical role of digital gamification in establishing learner-centric environments that support self-directed language acquisition. These findings collectively underscored the dual benefits of digital gamification as both an educational tool and a source of engagement, transforming conventional language practice into interactive game-based tasks. By infusing enjoyment into skill development, such approaches appeared to nurture enthusiasm for English mastery while aligning pedagogical methods with contemporary learner preferences.

Nevertheless, a subset of participants expressed reservations regarding the application of gamified digital tools in language education. Emerging themes within this category pointed to notable limitations encountered by users within gamified language platforms. For example, several students noted that superficial engagement and restricted lexical scope hindered their ability to track progress or meaningfully advance their skills. Specifically, the narrow focus on repetitive vocabulary and basic grammatical patterns was cited as a demotivating factor, with students feeling the content lacked diversity to sustain long-term growth.

Excerpt 6: "Though interactive, the gamification tools appear restricted to basic vocabulary and grammar. I want to delve deeper, but the platform lacks the depth needed to meaningfully advance my understanding."

These findings suggest that the constrained scope of vocabulary and grammar within gamified language platforms created impediments to students' linguistic progress, underscoring the need for more holistic content integration to equip EFL students with the diverse skills required for attaining proficiency. Additionally, participants critiqued the absence of meaningful interactivity in digital gamified systems, arguing that the lack of real-time engagement and personalized feedback hindered their ability to assess growth or refine competencies effectively.

5. Discussion

Guided by Csikszentmihalyi's (2011) Flow Theory, this mixed-methods study explored the impact of mobile app-based gamified language learning tools on EFL students' linguistic proficiency, foreign language enjoyment (FLE), and ideal L2 self. Results revealed that students exposed to digital gamification demonstrated significantly greater language gains compared to those in non-gamified instructional settings, aligning with prior research by Loewen et al. (2019) and Su and Zou (2022), which similarly underscore the pedagogical value of gamification in language acquisition. Govender and Arnedo-Moreno's (2020) framework further contextualizes these outcomes, positing that the students' heightened success may stem from the app's rich gamification elements—such as interactive challenges and rewards—which fostered sustained motivation and engagement. Additionally, the platform's intuitive design enabled flexible, self-paced learning opportunities, allowing users to practice and refine skills beyond traditional classroom constraints. Qualitative data corroborated these findings, with participants expressing favorable views of the gamified system's efficacy. Many highlighted its role in making language practice both

accessible and rewarding, thereby reinforcing their confidence and commitment to mastering English.

Digital and non-digital EFL students participated in both individual and interactive language learning endeavors. Digital students, though, had greater digital gamified features and more opportunities to carry out gamified language learning assignments. As a result, in terms of language attainment, they surpassed their non-digital counterparts. In other words, compared to the non-digital group, the gamified aspects of digital learning made the language learning process simpler for digital students and significantly enhanced their language skills.

EFL digital students utilized the gamified features not only to enhance their own language learning but also to help other students. This, in turn, increased their enthusiasm for digital gamified language learning activities. The individualized and interactive characteristics of language learning during digital gamified activities might be another reason for the digital students' better performance. Digital students got instant and customized feedback on their language performance, which likely contributed to their progress in language achievement.

It seems that digital gamified language learning activities aided students in becoming more autonomous in independent language learning. Based on interviews with digital students, the digital gamified features were beneficial for their language learning as they provided access to appropriate gamified elements.

The findings further indicated that the instructional methods incorporating digital gamification outshone those with non-digital gamification when it came to enhancing the Foreign Language Enjoyment (FLE) of EFL students. This could be attributed to the multiple advantages offered by digital gamification, which effectively heightened the EFL students' eagerness to take on the gamified language learning tasks.

In the qualitative segment of the research, digital EFL students underscored the pivotal role that digital gamified activities played in immersing them in an engaging language learning environment, enabling them to complete the language learning tasks. These qualitative findings were consistent with the quantitative results as well. Additionally, in the qualitative part of the study, the digital students emphasized how the digital gamified features successfully involved them in entertaining and gamified language learning activities, which likely contributed to their greater progress in FLE.

In line with Dewaele and MacIntyre's (2014) research outcomes, digital students demonstrated higher levels of enthusiasm and activity when participating in digital gamified language learning activities. Moreover, they were more disposed to engage in additional language learning activities that could notably boost their FLE. The results, bolstered by Dewaele and MacIntyre's (2014) findings, implied that the substantial improvements in language achievement among digital students might have had a considerable influence on their FLE.

According to Govender and Arnedo-Moreno's (2020) study, the appealing application of digital gamified language learning activities led to a significant enhancement of the FLE among its users. The research's qualitative components also supported the finding that the interactions between digital students and their peers provided them with opportunities to partake in more innovative and invigorating language learning activities.

Theoretical viewpoints like the Self-determination Theory (Ryan & Deci, 2000) and positive psychology theories (Seligman & Csikszentmihalyi, 2000) could potentially shed light on the processes behind the previously mentioned finding. In the self-determination theory, there are three fundamental psychological needs that encourage students to engage in a task driven by intrinsic motivation, and this intrinsic motivation is more likely to bring about enjoyment (Ryan & Deci, 2000). Digital gamified language learning activities have the ability to offer students opportunities to fulfill these basic psychological requirements (Van Roy & Zaman, 2019).

For instance, digital gamified language learning activities give EFL students options, such as allowing them to choose the topics or languages they wish to study. This enables them to satisfy their need for autonomy. Moreover, the instant feedback provided by the features of digital gamification, along with the clear establishment of goals and tracking of progress, can meet students' need for a sense of competence. Finally, the social interactions within the digital gamified language learning community, which involve sharing accomplishments and competing with other students, can satisfy the need for relatedness (Jeon, 2022; Kuo et al., 2014).

It can be suggested that the affordances of digital gamification could be utilized as an additional resource. This resource can support EFL students who have diverse learning styles, different proficiency levels, and various learning preferences and needs. Additionally, it can effectively monitor and identify the areas of language learning that require more attention from these students.

Furthermore, the positive psychology perspective places significant emphasis on the crucial role that positive emotions play in promoting well-being and increasing engagement in language learning tasks (De Smet et al., 2018). Positive emotions, such as the feeling of enjoyment, have been found to be closely related to higher degrees of engagement, better learning outcomes, and improved learning achievements (Fredrickson, 2001). Positive emotions are also connected to the concept of flow. Flow is a state where an individual is completely absorbed in an activity, which in turn leads to peak performance and a high level of satisfaction (Csikszentmihalyi, 2011). In light of this, digital gamified language learning activities, like those enabled by the features of the app, have the potential to cultivate positive emotions and experiences of flow. They achieve this by presenting students with clear and well-defined goals, offering immediate feedback on their performance, and giving them a tangible sense of progress as they learn (Rachels & Rockinson-Szapkiw, 2018).

Moreover, the results from the quantitative analysis revealed

that digital students surpassed non-digital students when it came to their ideal second language (L2) self. Similarly, Adolphs et al. (2018) provided evidence to support the beneficial impact of technologies on enhancing language students' perceptions of their ideal L2 self.

Given these findings, it can be contended that digital gamified language learning played a more supportive role in enabling digital EFL students to cultivate a positive self-image related to their language learning goals. This positive self-image was precisely what these students aspired to attain in their language acquisition journey.

These outcomes might be attributed to the immersive language learning environment that the features of digital gamification offered to EFL students. This environment allowed them to engage in both individual and interactive language learning tasks. For example, the gamified elements motivated students to participate in additional language learning activities, and this increased engagement ultimately contributed to the development of their ideal L2 self.

6. Conclusion

The results of this research indicated that when juxtaposed with non-digital gamified language learning, digital gamified language learning proved to be significantly more effective in enhancing the language proficiency and the concept of the ideal second language (L2) self among EFL students. Digital students exhibited positive attitudes and perspectives regarding digital gamified language learning, taking advantage of the affordances offered by such digital gamified language learning platforms. This positive sentiment further validated the quantitative data obtained in the study. Both the quantitative and qualitative results of the present investigation can be credited to the success of digital gamification in presenting students with a wide array of gamified language learning opportunities. These opportunities encompass gamification features and authentic language lessons, which foster language development not only when students study independently but also when they collaborate with their peers. By adopting the Flow Theory as a theoretical basis, a fresh vantage point was established for comprehending the psychological processes that are integral to digital gamified language learning activities. The findings strongly imply that digital gamified language learning activities have the potential to create an optimal learning environment. This environment serves to boost students' engagement, motivation, and enjoyment during the learning process. As a consequence, it leads to enhanced language achievement, increased Foreign Language Enjoyment, and a more refined perception of the ideal L2 self.

6.1 Pedagogical Implications for EFL Context

The results of this study have far-reaching implications for various key stakeholders in EFL instruction, namely EFL students, instructors, and app developers. For EFL students, mobile apps with gamified features can be a powerful tool in learner-centric classrooms, significantly enhancing their language achievement. It is recommended that students make full use of these digital gamified affordances for language growth, especially in collaborative language learning with

classmates. The interactive and immersive nature of digital gamification can improve both specific and overall language skills. By engaging in digital gamified language learning activities through mobile apps with similar gamified elements, the language learning process becomes more fun and enjoyable. This not only cultivates positive attitudes towards language learning but also boosts students' learning motivation.

For example, when using a gamified mobile app, EFL students can collaborate on tasks like matching words to pictures, completing sentences, and taking quizzes. Features such as points, badges, and leaderboards within these apps encourage students to participate more actively in interactive language learning, enabling them to better retain new vocabulary. Additionally, apps can offer a series of exercises, either interactive or individual, such as spotting grammatical errors, correcting sentences, and constructing sentences using specific grammar structures. As students complete these exercises, they earn rewards in the form of points and badges, which motivates them to keep practicing and refining their grammar skills. Moreover, they can monitor their progress and receive personalized feedback to identify and work on their individual weak areas. Instructors can also benefit from these findings. They can incorporate digital gamified language learning activities into their teaching plans. By doing so, they can create a more engaging and effective learning environment. The use of gamified apps can help instructors to diversify their teaching methods, making lessons more appealing to students.

In addition, instructors can assign group tasks using gamified apps in class, which promotes teamwork and communication among students while they learn the language. They can also use the data from the apps, such as students' progress and performance on different tasks, to better understand students' learning needs and adjust their teaching strategies accordingly. Application developers should take note of the effectiveness of gamified affordances in language learning. They can further optimize their apps based on these findings. For example, they can design more interactive and challenging language-learning games that incorporate a variety of language skills, such as speaking, listening, reading, and writing. Developers can also improve the feedback system within the apps to provide more detailed and useful information to students. Additionally, they can create more social features, such as chat functions or group competition modes, to enhance the collaborative aspect of language learning through their apps. This way, app developers can contribute to the improvement of EFL learning experiences and help meet the needs of both students and instructors.

6.2 Limitations and Suggestions for Further Researchers

However, it's important to recognize certain drawbacks in the present study. These pertain to the research design, intervention procedures, and students' views on digital gamification affordances, and they may prompt future researchers to conduct additional investigations. One such limitation lies in the sample size. In this study, a small number of EFL students were chosen from both digital and non-digital classes. To more confidently generalize the stud's results, future researchers are advised to select a larger and more

appropriate number of EFL students in both types of classes.

Another limitation is related to the research approach. A sequential explanatory mixed-methods approach was used for data collection and analysis. Given that digital students outperformed non-digital students in interactive gamified language learning activities, only individual semi-structured interviews were conducted with the digital EFL students. The assumption was that digital students could better explain their successful language learning performance. This is a shortcoming as it restricts the understanding of the differences in the effectiveness of digital and non - digital instructional procedures. Since qualitative data collection and analysis were limited to digital students, there's a lack of a comprehensive view. As a result, future researchers are encouraged to not only explore digital students' attitudes and perceptions regarding the use of digital gamified affordances for language learning activities but also to investigate non - digital EFL students' attitudes and perceptions towards non-digital gamified affordances for language learning. By doing so, they can compare the differences in the two groups' attitudes and perceptions and gain deeper insights into the study's findings.

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