



The Impact of Digital Games on Motivation and Attitudes of EFL College Students

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Introduction

In recent years, digital games have become increasingly popular among students, both as a form of entertainment and as a tool for learning as a natural development of the use of social media applications and the advent of online education (AlFarsi et al., 2020a; Derakhshan & Shakki, 2019; Soyooft et al., 2021). However, there is still much debate over the potential benefits and drawbacks of playing digital games, particularly in the educational context. One important factor that may influence students' engagement with digital games is their motivation to play and in turn, their motivation to learn the language.

Motivation is a key psychological construct that drives individuals to engage in activities and pursue goals. In the context of digital games, motivation can play a significant role in shaping students' attitudes toward these games, influencing how they perceive them and how willing they are to engage with them (Liu et al., 2021). Understanding the relationship between motivation and students' attitudes towards technology use and the online learning environment, specifically digital games, is essential for educators and game designers seeking to create effective and engaging learning experiences for students (Jiang et al., 2022; Taskiran, 2019).

With the advancement of technology, games' significance in the study of languages has grown. They provide students with the chance to actively engage in educational activities and cultivate their emotional responses, such as curiosity, motivation, and openness to participating (Gomleksiz, 2008). Studies point to their many benefits as inspiring, motivating, fascinating, and enhanced teaching resources in EFL lessons (Gozcu & Caganaga, 2016). Creating more proficient English speakers is the primary goal of language learners, teachers, and researchers; therefore, finding techniques to boost students' motivation to learn English may help them achieve this. The general agreement is that motivation and learning work in tandem to sustain and/or increase the amount of energy and activity needed for perseverance, engagement, and



performance during the learning process (Loes, 2022). Moreover, Csikszentmihalyi (2014) asserts that a university teacher's main duty is to promote students' intrinsic motivation or to make learning enjoyable. It could be argued that motivated language learners should receive effective instruction and the main online competencies of teachers should include professional, pedagogical, and social competencies.

One popular model that can be used to study the correlation between motivation and the student's attitude in playing digital games is Self-Determination Theory (SDT). SDT proposes that individuals are more likely to engage in an activity when they have a sense of autonomy, competence, and relatedness. In the context of digital games, this means that students are more likely to be motivated to play games when they feel that they have control over their gaming experience (autonomy), that they are capable of playing the game successfully (competence), and that they can connect with other players or characters in the game (relatedness) (AlFarsi et al., 2020b), though some findings reported the minimum existence of autonomy in learning specifically in out of class digital gaming (Al-Obaydi, Pikhart & Klímová, 2023a) which prove that autonomy in playing is different from autonomy in learning. In playing, the players are usually autonomous but in learning they are not autonomous.

Researchers can use SDT to design studies that investigate how these three basic psychological needs relate to students' motivation and attitudes toward digital games. For example, they can examine how giving students a choice in the type of game they play impacts their motivation to engage with the game and their attitudes towards it. They can also explore how the difficulty level of the game affects students' sense of competence and how this, in turn, influences their motivation and attitudes toward the game. Finally, researchers can investigate how the social aspects of the game, such as playing with friends or interacting with characters in the game, impact students' relatedness and how this affects their motivation and attitudes toward playing digital games (Hafsa, Majid, & Tawafak, 2021).

Throughout the last two decades, claims that digital games could play a significant role in language learning have been made at various times, but this has obviously not happened. Yet, the developments in network-based learning and the sizable online communities already utilizing games have sparked a resurgence in interest in the area (Afrilyasanti & Cahyono, 2022). Digital game-based learning, according to Patricia Deubel (2006), has the power to engage and encourage students, present learning experiences, aid long-term memory, and provide practical experience. According to Deubel (2006), in order for teachers to use game-based learning effectively, they must first identify nonviolent games that support planning and problem-solving and are relevant to the curriculum.

Alemi (2010) investigated the utilization of games in relation to the motivation they can give to pupils. The purpose of his study was to examine how word games can help students increase their vocabulary. Several students assume various game roles. They can expose new terminology or other meanings from their point of view, which other students can use as a recommendation and learn from. Digital games can encourage greater engagement outside of the classroom (Soyoof et al., 2021; Sylvén and Sundqvist, 2016). Yet, digital gaming is not allowed during school hours because it is typically regarded as addictive and non-educational (Gentile et al., 2011). Thus, L2 digital gaming mainly takes place in entirely extracurricular contexts, outside of institutions, in freely chosen digital engagement contexts (Thorne, Black, & Sykes, 2009).

A new observational research that lasted three months conducted by Al-Obaydi, Pikhart and Shakki (2023b), examined how young learners' use of digital games at home during their free time affected their inadvertent acquisition of English as a second language. The investigation was conducted in 2021, at the height of the Covid-19 pandemic. The study's findings demonstrated that participants' vocabulary development was significantly influenced by digital gaming and that playing games assisted in their acquisition of L2. Also, it was found that the players retained a lot of vocabulary; however, there were two problems with this, notably the longer screen time and vocabulary items specifically related to a certain game's scenario. While the games and the amount of time spent were determined by the participants, the results also demonstrate some degree of autonomy in learning. The motivation of the participants was related to playing and competition more than learning.

Based on the above, this paper aims to investigate the correlation between motivation and students' attitudes towards playing digital games. More specifically, the present study examines how different factors, such as age, gender, and prior experience with digital games, influence students' motivation levels and how this, in turn, impacts their attitudes towards digital games. The study employs a quantitative research design; using surveys and statistical analyses to explore the relationship between motivation and attitudes towards playing digital games among a sample of students. The findings of this study provide important insights into how educators and game designers can better align digital games with students' interests and motivations, promoting more effective and engaging learning experiences. Thus, the study could bridge the gap in the literature as this kind of research has rarely been applied to college students especially using extracurricular activities.

Research Questions

1. To what extent does the level of motivation impact students' attitudes towards playing digital games, and are there any demographic differences in this relationship (e.g., age, gender, socio-economic status)?
2. What factors contribute to students' motivation to play digital games, and how can educators and game designers leverage these factors to create more engaging and effective games for educational purposes?

Methodology

Instrument

The main instrument of the present study was a survey. The first part of it was related to the demographic information including age, gender, country, time spent, and the game played. It aims at collecting basic information about the participants. The age groups were divided into four categories (18-22, 23-26, 27-30, and above 30), where the highest number of participants belonged to the first category (18-22) with (66.8%), see Table 1.

The second part is about the country of the participants. The survey distributed among two countries, Iraq, University of Diyala, was (57.5%) of participant and the Czech Republic, University of Hradec Kralove with (42.5%).

The third part of the survey suggested eight common different games that most students like to play, and the highest interesting game was Bupg with 20.7% of participants considering it as their favorite and it was also primarily mentioned with the highest score of a game that helped students to enhance their language skill development (20.8%). The fourth part was related to students' attitudes that was supposed to measure students' perceptions of using digital games in their daily classes.

After confirming its face validity and reliability, the survey was distributed among university undergraduate students in two countries (Iraq and the Czech Republic) by Google Forms, and the link was shared among the participants via social media applications. The researchers in the two countries discussed the idea of the research with the students before applying the survey to them. The researchers listened to the students' suggestions and gained their consent.

Participants

The total number of respondents who participated and filled out the survey was 97. They were all EFL college students. Gender distribution was 65% males and 35% females who participated from both countries.

According to the usual time used for play, the maximum number of participants indicated 0-2 hours with (67.7%) and it is significantly higher compared to the other mentioned time scales for play. Table 1 shows the demographic analysis of participants' information.

TABLE 1
Demographical Information

Items		Percentage	Which digital games affect your language development?
		100%	
Total	97	100%	
Participants			
Age	18-22	66.8%	
	23-26	25%	
	27-30	1%	
	Above 30	2.4	
Country	Iraq	57.5%	
	Czech Republic	42.5%	
Gender	Male	65%	
	Female	35%	
Digital Game Played	Free Fire	9.4%	10.4%
	Minecraft	11.8%	15.6%
	Among Us	12.5%	10.4%
	Pubg	20.7%	20.8%
	Clash Royal	3.1%	3.1%
	Clash of Clans	8.4%	4.2%
	Ludo	10.2%	10.4%
	Fortnite	8.3%	4.2%
	No one of the above games affects my language development	15.6%	20.8%
	Time spent per day	0-2 Hours	67.7%
3-5 Hours		24%	
More than 5 Hours		8.3	

Results

Figure 1 shows that there is a correlation impact of both types of games played to motivation results with 0.6 having more impact than the reverse relationship with only 0.4. Also, the high and significant impact between a relationship from the time game spent during the day to the motivation student with 0.7 power, as much as excellent results compared to the reverse relationship from motivation to time spent on gameplay where it's only 0.3.

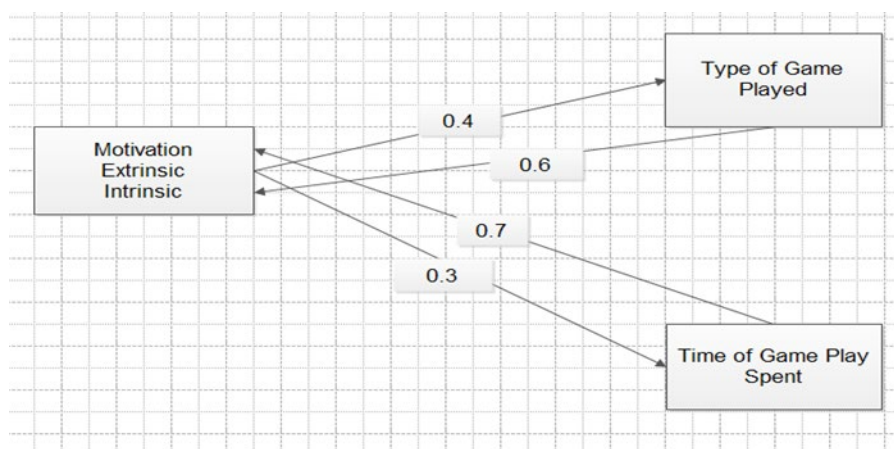


Figure 1. Research model.

Table 2 shows the motivation items used in the survey, and the loading item for each question tested using the SPSS program to evaluate the reliability and loading for every question. The accepted condition should be that the loading is equal to or greater than 0.7. According to Table 2, all contrasts used in the survey are accepted and well-selected for this study.

TABLE 2
Item Loadings

Code	Item	Loading
EXT1	Playing digital games motivates me to learn a foreign language.	0.966
EXT2	I usually play digital games at home to enhance/improve my English.	0.880
EXT3	I frequently ask my peers about games that enhance my English language.	0.783
EXT4	Developing my language skills raises my anxiety.	0.828
EXT5	My first aim in playing digital games is to develop my language skills	0.941
INT1	Playing digital games makes me relax.	0.878
INT2	I usually search for things that improve my level in the foreign language.	0.835
INT3	Playing digital games is my passion.	0.932
INT4	I enjoy playing digital games.	0.718
INT5	Playing digital games makes learning a language enjoyable.	0.965

Table 3 shows the construct reliability generated for the whole survey, as the initial indicator of whether the study could be used with a significant result or not. As Table 3 Cronbach's Alpha in SPSS condition of acceptance, it should be equal to or greater than 0.7. Table 3 shows Cronbach's Alpha with 0.935, which is significant and strongly fitted with the reliability test of the model constructs.

TABLE 3
Construct Reliability

	Cronbach's Alpha
Total = 97	0.935

Table 4 demonstrates the reliability of the items used and the accepted values of the factors that should be above or equal to 0.7. According to Table 4, the reliability results give 0.935 which is highly accepted and significant for the study.

Results show that the level of learning motivation of students is positively correlated with their attitudes toward playing digital games. In other words, students who are highly motivated to learn while playing digital games will have a more positive attitude towards them, and this correlation will be statistically significant.

As mentioned in Figure 1. The motivation impact for each relationship is shown in Table 4.

TABLE 4
Relationship Impact between Constructs

Relationships	Result Impact	Remarks
Forward Relationship		
Motivation → Type of Game Played	0.4	Good Accepted
Motivation → Time of Game Play Spent	0.3	Weak Accepted
Backward Relationship		
Type of Game Played → Motivation	0.6	Significant Accepted
Time of Game Play Spent → Motivation	0.7	Significant Accepted

One possible statistical analysis that could be used to investigate the correlation between motivation and the student's attitude toward playing digital games is Pearson's correlation coefficient (r). This statistical method measures the strength and direction of the linear relationship between two variables, in this case, motivation and attitude towards digital games.

To determine the statistical significance of the correlation, the study used a hypothesis test and calculated the p-value. A p-value less than 0.05 (assuming a significance level of 0.05) indicated that the correlation is statistically significant, meaning that it is unlikely to have occurred by chance.

The statistical analysis also includes a regression analysis to identify any potential confounding variables that may influence the relationship between motivation and attitude toward digital games. For example, the study examined whether age, gender, or prior experience with digital games moderates the relationship between motivation and attitude toward digital games.

The results of a study on the correlation between motivation and the student's attitudes in playing digital games demonstrate the following:

There is a positive correlation between motivation and students' attitudes toward playing digital games. This result indicates that students who are highly motivated to learn digital games tend to have a more positive attitude towards them.

Differences in motivation and attitudes towards digital games are based on demographic factors such as age, gender, and prior experience with digital games. For example, the study finds that younger students are more motivated to play digital games than older ones and that male students are more motivated to play than female students.

Discussion

The findings show a significant positive correlation between motivation and attitudes towards playing digital games. The results also show that students who are highly motivated to play digital games have a more positive attitude towards them. This result is in line with Taskiran (2019) who reported that most students found the activities in augmented learning games to be highly motivating and entertaining, which is typical in augmented reality research. Since students can improve their learning experience and outcomes by participating in enjoyable and interesting learning, learning elements like students' motivation and interest should also be considered in addition to technological preparations as reported by (Hashim et al., 2019).

Moreover, the study found that the level of motivation is influenced by various factors, such as age, gender, and previous experience with digital games. For instance, older students may be less motivated to play digital games compared to younger students, and male students may be more motivated to play than female students. Additionally, students who have prior experience playing digital games may be more motivated to play than those who have never played before. Similar findings have been reported by Hsu (2019) in his study which was conducted among third-grade students to learn English vocabulary in situated surroundings. The male students had high flow experience. Also, a study by González-González et al. (2022) generates the same findings claiming that the number of days per week the female participants play is significantly lower than expected from their number. Additionally, the frequency of games used is higher among younger kids. On the contrary, the most recent study by Almusharraf et al. (2023) on this research topic did not find any significant difference in gender as far as the learner's level of motivation and engagement within game-based classrooms is concerned. The results of the t-test revealed that no significant difference between male and female participants had been observed by the instructor.

These findings have implications for educators and parents who seek to understand the role of digital games in education and for game designers who aim to create games that are more engaging and motivating for students. In addition, the gamification technique not only enhances students' motivation but also improves their learning outcomes (Saovapa, & Fasawang, 2018), and their technology knowledge (Tawafak et al., 2023). Furthermore, Shamsutdinova, Khakimzyanova, and Melnikova (2017) posit that interactive games stimulate students to be attentive and participatory, and they also help educators create interesting lessons.

The impact of motivation on the correlation between motivation and students' attitudes toward playing digital games is a central focus of this study. The findings suggest that motivation plays a significant role

in shaping students' attitudes toward digital games which is in agreement with Afrilyasanti and Cahyono (2022) who discovered that gamification significantly impacted students' success in studying both during and after the Covid-19 pandemic. Gamification, in other terms, encourages the process through which students' learning is adjusted. Specifically, students who are more motivated to play digital games tend to have a more positive attitude towards them. This suggests that motivation is an important factor in determining whether students view digital games as a fun and engaging activity or as a waste of time.

The limitations of this study may consist of a relatively small research sample. However, on the other hand, the research sample included university students from two different countries, which might contribute to the overall objectivity and validity of the results of this study.

Overall, these findings suggest that educators and game designers should consider how to increase motivation to improve attitudes toward digital games among students. For example, game designers could create games that are challenging and engaging (provide specific examples., while educators could incorporate digital games into the classroom in a way that aligns with students' interests and motivations.

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