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A Gamified Learning Environment (Moodle) to Enhance English Language Learning at University Level

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This paper explores the use of gamification in Second Language Acquisition (SLA) within Computer-Assisted Language Learning (CALL). The aim is to investigate the effects of a gamified learning environment, specifically Moodle, on psychobehavioural factors and English learning achievement, and to discuss the affordances of gamification based on empirical findings, contributed both by the present study and previous research. For this purpose, a case study was conducted at the University of Andorra, where a treatment group completed a gamified English course on Moodle, and a control group did the same tasks without gamification. A mixed methodology was used to measure both affective and cognitive variables as well as students' perceptions on their gamified learning experience. The results show that the treatment group outperformed the control group in Foreign Language Anxiety (FLA) and in Academic Motivation (AM). As for the effects on speaking fluency, they are inconclusive, which is consistent with previous literature. Consequently, the authors advocate for further research to explore the effects of gamification on actual learning in different learning disciplines, beyond students' mere perceptions.

Keywords: academic motivation, computer-assisted language learning, foreign language anxiety, gamification, second language acquisition, speaking fluency

INTRODUCTION

Maintaining students' attention and engagement in learning activities is a significant difficulty when teaching second languages (Gardner & Lambert, 1972). Teachers should take into account psychobehavioural and affective factors such as student motivation, anxiety, or self-confidence as crucial elements in the learning process in order to stimulate a higher level of engagement among students (Krashen, 1982; MacIntyre & Gardner, 1994). To involve all students in the game-like environment, as

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is the case in SLA settings, gamification design must incorporate components that motivate all player types. Intrinsic and extrinsic motivation are two categories of motivations that Marczewski (2019) defines for game-like situations. This psychological approach of motivation in gamification is an adapted framework inspired by Deci and Ryan's (2010) theory of Self-determination. While the motivational effects of gamification have been widely reported, cognitive affordances are still unclear from a scientific point of view and an increasing number of researchers advocate for more research in the educational field (Dehghanzadeh et al., 2019; Dichev & Dicheva, 2017; Majuri et al., 2018). As a matter of fact, while noted experts claim that gamified environments are effective settings for increasing motivation in SLA, their cognitive impact has not been extensively explored or empirically supported (Cardoso et al., 2017; Dehghanzadeh et al., 2019).

Based on all the above-mentioned research evidence, this study aims to examine the effects of a gamified second language course on students' psychobehavioural and cognitive responses like motivation, anxiety, and learning achievement in speaking fluency.

The specific purpose of the present paper is to provide answers to the following Research Questions:

- RQ1: Do gamified ESL materials on Moodle reduce students' Foreign Language Anxiety?
- RQ2: Do gamified ESL materials enhance Academic Motivation?
- RQ3: Do gamified ESL materials help to improve L2 speaking fluency?
- RQ4: What gamification design elements are the most efficient in promoting students' motivation towards a gamified learning environment?

Theoretical Framework

Motivation and anxiety in Second Language Acquisition

When compared to extrinsic motivation, which only exists when there is an external reward, intrinsic motivation may be more long-lasting and, therefore, preferable if it comes from within the individual (Deci & Ryan, 2010). In the learning of a second language, motivation is also a complex and rapidly changing psychobehavioural construct that encourages students to persevere despite the difficulties they may face during such a long process (Tsai, Tsai, 2019; Dörnyei & Ryan, 2019; Dörnyei & Ushioda, 2010). The importance of motivation as an affective filter in L2 learning has long been studied by influential SLA authors (Gardner & Lambert, 1972; Krashen, 1982). In the academic context, Vallerand et al. (1992) created the Academic Motivation Scale (AMS), a commonly used instrument to measure students' intrinsic and extrinsic motivation, from a larger perspective in learning and adhering to the SDT principles.

According to studies using a cognitive perspective, anxiety has also a detrimental impact on learning processes in a variety of areas, including mathematics, language, music, and sports (Ryan & Deci, 2020; Horwitz, 2001; MacIntyre & Gardner, 1994; Zeidner, 2014). Students learning a second language may experience anxiety when

speaking since it is a spontaneous, risky action that must be generated in a short time (Derakhshan et al., 2016).

Affordances of gamification at higher education and second language learning

Studies on gamification have widely shown a positive effect on student motivation and engagement in higher education (Hamari, Koivisto & Sarsa, 2020). However, finding a direct link between gamification components and their impact on learning is challenging because there is a dearth of qualitative research in this area. Sailer and Homner (2020) published a study that provides insights into the effectiveness of gamification in learning, highlighting areas where further research is needed to understand its impact on educational outcomes fully. Nevertheless, many pieces of research evidence are solely dependent on how language learners perceive themselves, rather than objective measurements of how they are actually learning (Dehghanzadeh et al., 2019). Accordingly, experts in educational gamification advocate for more pedagogical care when designing gamified learning settings. Nicholson (2012) and Lieberoth (2019) suggest incorporating 'meaningful gamification', which involves placing the users at the heart of the game design and adapting it to their interests and learning goals. Wu (2021) investigates the impact of gamification on engagement and achievement in English language learning, offering evidence of its potential benefits and limitations. As for psychobehavioural variables, the reviewed literature pays much attention to motivational drives. However, considering that anxiety is a crucial affective barrier in second language learning (Dewaele & MacIntyre, 2016; Horwitz, 2001; Krashen, 1982), little interest has been shown in exploring correlations between students' motivation, anxious states and learning achievement. Moreover, while most studies show learning results on grammar achievement, little research has been focused on measuring speaking performance as one of the most overwhelming tasks for L2 learners (Zheng & Cheng, 2018).

METHOD

Context

An English course of level B1 at the University of Andorra (UdA) was selected as the context (in the fall semester 2018-2019). Due to organizational issues, the study was performed in a first-year English course. The research was carried out within the first academic semester when there are the most students enrolled because of the UdA's small size, and the difficulty in recruiting multiple students to participate in a research study. The gamified learning space was built on Moodle, which has been used at the UdA for more than a decade. The comparative study took place between a non-gamified CALL system and a gamified CALL system in which both groups followed the same syllabus.

Participants

The sample of the study included 23 undergraduate students (14 females and 9 males) from three different study fields: computer science, business administration and educational sciences. They were split into two groups: a treatment group of 13 students

who carried out gamified learning activities and a control group of 10 participants who did the same tasks without gamification.

The case study

In the present research, a case study was judged to be the most practical method for two key reasons: On the one hand, the UdA has a limited population where a broad statistical study would be hardly applicable and, on the other hand, this investigation intends to provide an in-depth understanding of the use of gamification in SLA that would hardly be achievable from a single type of data source. In fact, a small number of students (N=392 in 2018) enrol in face-to-face degrees each year as a result of the university's small size. Additionally, learning processes are extremely complex phenomena that demand the use of numerous methods to properly understand them (Creswell et al., 2007). This is a crucial conditioning factor that motivated us to select a thorough mixed-method, with a quasi-experiment which includes a quantitative phase, and a qualitative phase that helps in the understanding of the quantitative results.

Gamification design on Moodle

Before the course started, the researchers included gamification elements on the Moodle to be used with the treatment group. The narrative consisted of a company named Mountain Experience, which offers tours to Andorran mountain huts. In this environment, they contacted students who were registered with the aim to hire new English-speaking guides. As a result, the Moodle course was transformed into a professional competition, where students had to demonstrate good communication skills in English in order to secure a job position at Mountain Experience. The journey consisted of twelve weekly tours. The design included what Werbach and Hunter's (2012b, 2012a) defined as hierarchical organization of game elements: components (levels, points, leaderboards), mechanics (challenges, competition, feedback) and dynamics (progression, relationships). We also made sure that Moodle included elements that would inspire different gamer types. Key authors in game design have identified four player categories as being the most prevalent: socializers, achievers, explorers, and killers (Zichermann & Cunningham, 2011). By keeping these players types in mind, we made sure to stimulate emotional states associated to self-determination (Deci & Ryan, 2010), including Relatedness, Autonomy, Mastery, and Purpose, as proposed by Marczewski (2019) in his RAMP framework.

Data collection and analysis

In order to measure language anxiety and motivation we administered tests before and after the course. For the quantitative phase, and in order to measure speaking fluency, a pretest-midtest-posttest method was applied in both groups, with the intention to spot any eventual difference occurring throughout the learning process. In the qualitative part, semi-structured interviews were conducted before and after the gamified course with five students from the treatment group, with the aim to capture their perceptions on the use of gamification at university.

Quantitative data: Research tools and analysis

Foreign Language Anxiety

Data on students' anxiety was collected in a pre-posttest using the Foreign Language Classroom Anxiety Scale (Horwitz, 2001), a 5-point Likert scale with 33 items that describe anxiety states from three dimensions: communication apprehension, fear of negative evaluation and test anxiety. Possible answers range from strongly agree' to 'strongly disagree' (See Appendix 1).

Academic Motivation

Motivation was measured through a pre-posttest by administering the Academic Motivation Scale (Vallerand et al., 1992), a 7-point Likert scale which covers 28 items based on intrinsic, extrinsic and amotivation. The underlying approach of AMS is based on the Self-Determination Theory (Deci & Ryan, 2010), and was considered a pertinent instrument for our quantitative inquiry, as it gathers useful data to better understand the degree of motivation students show in learning within an academic context (See Appendix 2).

Speaking fluency

Speaking fluency was assessed using three speaking productions—podcasts and videos—that each student posted on Moodle at the start, middle, and end of the term. Altogether, 69 speech productions resulting in more than 50 minutes were fully transcribed and analysed. The measurement method used by Llanes and Muñoz (2009) was applied to measure the following 6 different variables:

Syllables per Minute (SPM)

Other Language Word Ratio (OLWR)

Filled Pauses Per Minute (FPPM)

Silent Pauses Per Minute (SPPM)

Articulation Rate (AR)

Longest Fluent Run (LFR)

Once the rates were calculated, we used SPSS to perform statistical analyses. We studied the differences in Gains (difference between pretest and posttest results) both for Control and Experimental groups (control group -CG- and experimental group -EG) through a non-parametric test U Mann-Whitney (MacFarland & Yates, 2016). The Mann-Whitney U test was used to compare differences between the two independent groups due to the limited size of the sample, and also because these variables were ordinal (Likert scale) and not normally distributed.

Qualitative data: Research tool and analysis

Student's perception on gamification

In order to explore students' perception on learning English on a gamified Moodle at university, face-to-face semi-structured interviews were conducted with each of the

students recruited before and after the course. Semi-structured interviews are a powerful method for gathering intangible information about people's opinions and beliefs within the confines of a study (Cohen et al., 2007; Merriam & Tisdell, 2015). This form of interview followed a pre-determined outline (See Appendix 3), which allowed us to stay focused on the research topics while enabling open-ended questions to capture nuances in participants' particular experiences (Bisquerra & Alzina, 2004; Stake, 2005). All of the audio-recorded interviews resulted in roughly two and a half hours of transcriptions, including pre- and post-interviews. The completed transcript was then processed, coded and tagged via Atlas-ti, a widely used qualitative data analysis software. Saldaña's (2021) codes-to-theory model was used to conduct a sequencing analysis (See full details in the Results section).

FINDINGS

Anxiety gain

The total level of anxiety diminishes after the experiment, according to the results provided in Table 1: 'communication apprehension' drops in a higher percentage in the Experimental Group (EG): 1.20% in the Control Group (CG) and 4.15% in the EG. The CG (0.70%) shows a higher level of 'fear of negative evaluation' than the EG (-1.15%). Finally, ' test anxiety' increases in both groups, but in the CG, it is much higher than in the EG (3.20% vs. 0.54%). As a result, we can confirm that the variable FLCA decreases following the experiment in the EG. Nonetheless, the Mann Whitney test results in Table 1 show a non-significant difference between groups.

Table 1
Significance of gains. foreign language anxiety. mean ranks and Mann-Whitney's U

	Control Group		Experimental Group			
	n	Mean Rank	n	Mean Rank	U	p
Communication apprehension	10	14.35	13	10.19	41.50	0.148
Fear of negative evaluation	10	14.05	13	10.42	44.50	0.208
Fear of language tests	10	13.10	13	11.15	54.00	0.522

Academic Motivation gains

Significant differences were found between the two groups, most notably in motivation, which we investigated further using the mean ranks difference test (U Mann Witney): All of the motivation items increase in the experimental group, except for internal motivation to know,' which falls in both groups, according to the results provided in Table 2. In general, the data suggest that in the CG, intrinsic motivation falls by -4.8% and increases by 0.3%. Extrinsic motivation drops by 4.5% in the CG while increasing by 1.8% in the EG. If we look at the results closely, we can observe that 6 of the 7

specific motivational components examined in this study are beneficial for the EG, while in the CG only one is positive. Furthermore, when the Mann Whitney U test is used, two of the results show significant differences: U (IMA = 26.00, p =.015); U (ER = 33.00, p =.049). Table 2 depicts the following information: All of the results suggest that 'intrinsic motivation toward accomplishment' and 'extrinsic motivation from external regulation' are significant. The other results (save for the 'intrinsic motivation to know' measure) are clearly positive for the EG.

Table 2
Significance of gains. academic motivation. mean ranks and Mann-Whitney's U

Intrinsic Motivation (IM) / Extrinsic Motivation (EM)	Control Group		Experimental Group			
	n	Mean Rank	n	Mean Rank	U	p
IM to know	10	10.35	13	13.27	48.50	0.313
IM toward accomplishment	10	8.10	13	15.00	26.00	0.015*
IM to experience stimulation	10	13.25	13	11.04	52.50	0.446
EM identified	10	9.65	13	13.81	41.50	0.148
EM introjected	10	9.65	13	13.81	41.50	0.148
EM from external regulation	10	8.80	13	14.46	33.00	0.049*
Amotivation	10	12.55	13	11.58	59.50	0.738

Fluency gains

The results of fluency differences do not indicate a clear trend, as illustrated in Table 3. In fact, several fluency rates in the CG outperform those in the EG:

- SPM (Syllables Per Minute) Gain: The CG enhances the speed of speech (a gain of 8.3%), whilst the EG slows down (a gain of -0.8%).
- OLWR (Other Language Word Ratio) Gain: Both groups demonstrate a decrease in the number of foreign words in English speaking, which is a positive outcome. Despite this, the CG generates somewhat fewer foreign words (-77.5%) than the EG (-62.1%).
- FPPM (Filled Pauses Per Minute) Gain: In this scenario, the EG reduces the number of filled pauses by 87.9%, whereas the CG increases the number of filled pauses.
- SPPM (Silent Pauses Per Minute) Gain: For silent pauses, the CG reduces them by 72.4% while the EG raises them by 58.9%.
- AR (Articulation Rate, known as the number of words per minute) Gain: The CG improves the number of words per minute (a gain of 2.8%), whereas the EG decreases productivity (a loss of 1.1%).

- LFR (Longest Fluent Run) Gain: In this scenario, both groups improve, but the CG outperforms the EG since the CG gains 43.6% while the EG gains 18.5%.

Table 3
Significance of gains. fluency. mean ranks and Mann-Whitney's U

	Control Group		Experimental Group			
	n	Mean Rank	n	Mean Rank	U	p
SPM Gain	10	12.50	13	11.62	60.00	0.784
OLWR Gain	10	10.80	13	12.92	53.00	0.483
FPPM Gain	10	12.70	13	11.46	58.00	0.663
SPPM Gain	10	9.40	13	14.00	39.00	0.115
AR Gain	10	12.30	13	11.77	62.00	0.879
LFR Gain	10	12.75	13	11.42	57.50	0.648

Despite the differences in %, the Mann-Whitney test results show no significant differences between groups; only a clear tendency in SPPM stands out. These confusing findings indicate that more research on the subject is required.

Findings on students' perceptions on gamification

The semi-structured interviews held before and after the course with five participants in the treatment group revealed different perceptions related to the motivational effects of the gamified course in different aspects. The following figure shows the main relations extracted from the qualitative analyses, which are further described below.

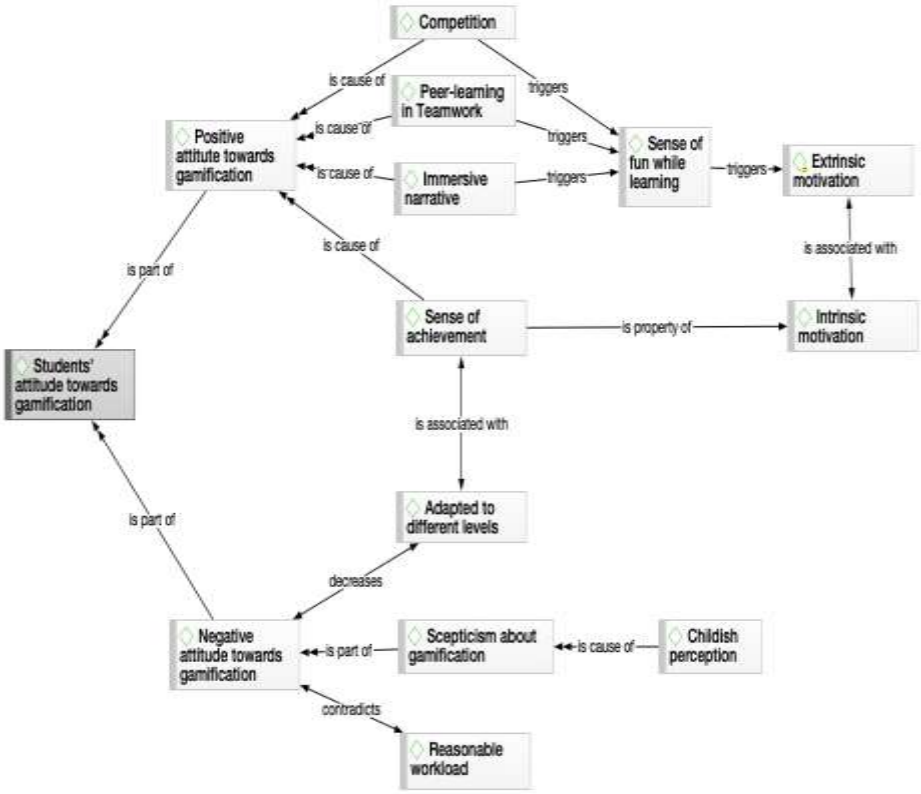

Figure 1
Thematic network of students' perceptions on gamification
Source: Researcher's mind map built on Atlas-ti (Azzouz, 2021)

Most students expressed a clear interest in competition-related components such as points, ranking, or weekly progress after the course. They also stated that when participating in teams, they were motivated or were motivated by their teammates to do more and better in each challenge. Socialisation in gamification appeared to be a consistent emerging motivator among students. They liked sharing their learning experiences and learning from one another. Three students described a sense of absorption in the gamification narrative, where pretending to be mountain guides appeared near to their reality. One student stated that using English could be appropriate in a professional setting. The majority of responders cited motivation as a result of self-achievement during the course. This attitude could be linked to all of the constructive feedback students saw on Moodle when they finished their weekly challenges, particularly the feedback displayed on the leaderboards. Their motivation stemmed from both individual and team progress.

Although positive perceptions were prevailing, some minor negative feedback could also be extracted from the interviews. Two students pointed out that too much workload could be demotivating, especially when the tasks were overlapped with other academic duties and exams. Additionally, two students recommended the inclusion of multilevel tasks for those who had higher levels in English. Finally, as an isolated but still pertinent belief, a student showed an initial sceptic attitude towards gamification describing it as some "childish" strategy that might not be suitable for adult learners. However, this same student ended up showing the highest levels of motivation by the end of the term.

DISCUSSION

As reported by earlier studies in the field (Barcena & Sanfilippo, 2015; Dehghanzadeh et al., 2019; Dichev & Dicheva, 2017; Gafni et al., 2017; Majuri et al., 2018; Munday, 2016), the qualitative findings generally indicate that students demonstrated overall positive attitudes toward gamification before and after the course.

Regarding anxiety in ESL, the majority of students mentioned their issues in speaking when asked about the biggest challenges they face when using English (Horwitz, 2010; Zheng & Cheng, 2018). Before the course, students shared insightful ideas and perspectives that were specifically related to FLA. Their responses reveal a scared anticipation of circumstances in which they might receive negative feedback, particularly from their peers. These scenarios would often arise in a classroom context when a teacher unexpectedly requests that students answer questions in front of the entire class. Therefore, exposure to the public could result in high levels of communication anxiety as a consequence of the worry of receiving unfavourable judgment (Liu & Huang, 2011), which can be viewed as a threat to one's self-esteem and self-efficacy (Bandura, 1982). While the gamified course was perceived to be more motivating than traditional learning environments, some game elements related to social interactions and self-achievement stand out as strong enhancers of both extrinsic and intrinsic motivation (Aldemir et al., 2018; Barata et al., 2014). Additionally, the sense of competition, peer learning in teamwork, and immersion in the narrative were some of the driving gamification components that students also valued (Aldemir et al., 2018; Chapman & Rich, 2018; Krause et al., 2015; Werbach & Hunter, 2012b).

Despite the fact that students felt generally better about their oral skills progress, our quantitative findings provide no convincing proof of fluency achievement. These results support earlier ambiguous evidence about the cognitive impacts of gamification in different learning fields (Cardoso et al., 2017; Dehghanzadeh et al., 2019; Rojas-López et al., 2019). Fluency doesn't seem to benefit from the impacts of gamification, due to of the highly cognitive processes it entails (Kormos, 2006). Instead, they claim that gamification appears to be more useful for practical abilities than factual competences. As a final reflection on learning achievement, in order to ensure that students enjoy the learning process and ultimately achieve real learning beyond subjective perceptions, gamification should only be used once a strong pedagogical design is well established (Dehghanzadeh et al., 2019; Dichev & Dicheva, 2017; Sailer & Sailer, 2021).

In synthesizing the extant literature with our empirical findings, this study contributes a novel perspective on the nuanced impacts of gamification in ESL learning environments. Unlike prior research which predominantly celebrates the motivational benefits of gamification (e.g., Aldemir et al., 2018; Barata et al., 2014), our study delineates a more complex picture, particularly in the realm of language fluency. The qualitative enthusiasm for gamified learning, as evidenced by improved attitudes and reduced anxiety, stands in stark contrast to the quantitative stagnation in fluency achievement. This dichotomy not only underscores the necessity for a pedagogical design that balances motivational techniques with cognitive development (Dehghanzadeh et al., 2019; Dichev & Dicheva, 2017) but also emphasizes our novel finding: gamification, while potent in enhancing practical skills and reducing linguistic anxiety, shows limited efficacy in fostering the cognitive aspects of language learning, such as fluency.

Furthermore, our research uniquely identifies specific game elements (e.g., social interactions, self-achievement, competition) that act as dual-edged swords—enhancing motivation and engagement, yet not necessarily translating into fluency or deeper linguistic competences. This insight challenges the conventional wisdom around gamification's role in education and suggests a pivot towards a more nuanced understanding of its benefits and limitations. Consequently, our findings advocate for a more discerning application of gamification in ESL contexts, where the pedagogical integration of gamified elements must be aligned with the cognitive demands of language learning.

CONCLUSION

This paper intends to shed some more light on the use of gamification at higher education, more specifically in CALL. In response to the first research question (RQ1: Do gamified ESL materials on Moodle reduce students' Foreign Language Anxiety?) our findings show that anxiety decreased after the gamification treatment. The element 'test anxiety' grew in both groups, although more so in the control group. These findings are consistent with previous research evaluating various ways to help learners reduce communication anxiety, such as collaborative exercises (Dörnyei & Kormos, 2000) and using technology as a medium of communication (Reinders & Wattana, 2014).

The second research question (RQ2: Do gamified ESL materials enhance Academic Motivation?) is answered positively: gamification increases both extrinsic and intrinsic motivation. Significant differences were found in 'intrinsic motivation toward accomplishment" and 'extrinsic motivation from external regulation'. The findings of this case study are aligned with earlier studies on the use of game-like settings to improve learning experiences by wrapping traditional education in appealing materials (Hakulinen & Auvinen, 2014; Kapp, 2012; Whitton & Langan, 2019). Furthermore, the results show that in the control group, both types of motivation decreased.

The answer to the third research question (RQ3: Do gamified ESL materials help to improve L2 speaking fluency?) is negative. This result is also consistent with previous studies showing inconclusive or negative results (Armstrong & Landers, 2017; Cardoso et al., 2017; Majuri et al., 2018; Rojas-López et al., 2019). In contrast, participants in

the qualitative study reported a broad perception of development in speech skills. This contradiction with the quantitative data could be attributed to the extremely complicated phenomenon of speaking, particularly in SLA. Fluency improvement, according to key authors, is a long-term process that requires a large amount of practice, repetition, and automation tasks (Kormos, 2006; Nation, 1989: Yavary & Shafiee, 2019).

In terms of students' attitudes regarding gamification (RQ4), they demonstrated an overall positive attitude toward game-like learning environments in higher education. Some game elements, such as narrative, competition, achievements and socialisation, appear to be outstanding powerful motivators, according to their perceptions (Aldemir et al., 2018; Nicholson, 2012; Werbach & Hunter, 2012b, 2012a). Students also indicated the meaningful aspect of the gamification design. That supports the idea that successful gamification design should incorporate a balanced use of diverse game elements directly connected to their learning goals and interests (Exton, 2017; Nicholson, 2012).

Finally, while we argue that gamification deserves to be given the role of a motivator in SLA, we also advocate for caution since this technique seems to be effective to get most students on board in the classroom but learning achievement should be guaranteed by the teaching presence in the learning process (Suharno et al., 2023) with a solid pedagogical design (Dehghanzadeh et al., 2019).

In conclusion, our study marks a significant advancement in the literature on gamification in ESL education by providing empirical evidence that tempers the enthusiasm for gamification with a critical assessment of its educational outcomes. It suggests a pathway forward that leverages the motivational benefits of gamification while addressing its limitations through a robust pedagogical framework. This balanced approach promises not only to enhance student engagement but also to foster genuine and measurable learning achievements in language education.

FURTHER RESEARCH

To address these limitations and further the understanding of gamification in ESL education, we believe that future research could consider the following: Future studies should aim to include a larger, more diverse cohort of students, potentially from different institutions or countries. This would enhance the external validity of the findings, allowing for more generalizable conclusions about the effectiveness of gamification across various educational settings. Also, investigating the impacts of gamification over a longer period could provide deeper insights into how gamified learning influences language proficiency, motivation, and anxiety in the long term. Such studies could track changes in students' language skills and psychological states across multiple semesters or years. Integrating more objective assessments of language proficiency, such as standardized tests or automated linguistic analysis, could complement self-reported data and provide a fuller picture of learning achievements. Also, further qualitative research, including interviews and observations, could enrich the understanding of students' experiences with gamified learning. This could uncover nuanced motivations, challenges, and strategies that students use within gamified environments.

By addressing these limitations and considering these suggestions, future research can build on the findings of this study to offer more nuanced and comprehensive insights into the role of gamification in enhancing ESL education.

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APPENDICES

Appendix 1
Questionnaire: Foreign Language Classroom Anxiety Scale (Horwitz, 2001)

1. Strongly agree / 2. Agree / 3. Neither agree nor disagree / 4. Disagree / 5. Strongly disagree	
SITUATIONS	
1	I never feel quite sure of myself when I am speaking in my foreign language class.
2	I don't worry about making mistakes in language class.
3	I tremble when I know I'm going to be called on in language class.
4	It frightens me when I don't know what the teacher is saying in the foreign language.
5	It wouldn't bother me at all to take more foreign language classes.
6	During language class, I found myself thinking about things that have nothing to do with the course.
7	I keep thinking that the other students are better at languages than I am.
8	I'm usually at ease during tests in my language class.
9	I start to panic when I have to speak without preparation in language class.
10	I worry about the consequences of failing my foreign language class.
11	I don't understand why some people get upset over foreign language classes.
12	In language class, I can get so nervous I forget things I know.
13	It embarrasses me to volunteer answers in my language class.
14	I would not be nervous speaking the foreign language with native speakers.
15	I get upset when I don't understand what the teacher is correcting.
16	Even if I'm well prepared for the language class, I feel anxious about it.
17	I often feel like not going to my language class.
18	I feel confident when I speak in foreign language class.
19	I'm afraid that my teacher is ready to correct every mistake I make.
20	I can feel my heart pounding when I'm going to be called on in language class.
21	The more I study for a language test, the more confused I get.
22	I don't feel pressure to prepare very well for language class.
23	I always feel that the other students speak the foreign language better than I do.
24	I feel very self-conscious about speaking the foreign language in front of other students.
25	Language class moves so quickly I worry about getting left behind.
26	I feel tenser and more nervous in my language class than in my other classes.
27	I get nervous and confused when I'm speaking in my language class.
28	When I'm on my way to language class, I feel very sure and relaxed.
29	I get nervous when I don't understand every word the language teacher says.
30	I feel overwhelmed by the number of rules you have to learn to speak a foreign language.
31	I am afraid that the other students will laugh at me when I speak the foreign language.
32	I would probably feel comfortable around native speakers of the foreign language.
33	I get nervous when the language teacher asks questions which I haven't prepared in advance.

Appendix 2
Questionnaire - Academic Motivation Scale (Vallerand et al., 1992)

Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons why you go to college.

Does not correspond at all	Corresponds a little		Corresponds moderately	Corresponds a lot		Corresponds exactly
1	2	3	4	5	6	7

WHY DO YOU GO TO COLLEGE?

1. Because with only a high-school degree I would not find a high-paying job later on.
2. Because I experience pleasure and satisfaction while learning new things.
3. Because I think that a college education will help me better prepare for the career I have chosen.
4. For the intense feelings I experience when I am communicating my own ideas to others.
5. Honestly, I don't know; I really feel that I am wasting my time in school.
6. For the pleasure I experience while surpassing myself in my studies.
7. To prove to myself that I am capable of completing my college degree.
8. In order to obtain a more prestigious job later on.
9. For the pleasure I experience when I discover new things never seen before.
10. Because eventually it will enable me to enter the job market in a field that I like.
11. For the pleasure that I experience when I read interesting authors.
12. I once had good reasons for going to college; however, now I wonder whether I should continue.
13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.
14. Because of the fact that when I succeed in college, I feel important.
15. Because I want to have "the good life" later on.
16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.
17. Because this will help me make a better choice regarding my career orientation.
18. For the pleasure that I experience when I feel completely absorbed by what certain authors have written.
19. I can't see why I go to college and frankly, I couldn't care less.
20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.
21. To show myself that I am an intelligent person.
22. In order to have a better salary later on.
23. Because my studies allow me to continue to learn about many things that interest me.
24. Because I believe that a few additional years of education will improve my competence as a worker.
25. For the "high" feeling that I experience while reading about various interesting subjects.
26. I don't know; I can't understand what I am doing in school.
27. Because college allows me to experience personal satisfaction in my quest for excellence in my studies.
28. Because I want to show myself that I can succeed in my studies.

Academic Motivation dimensions:

2, 9, 16, 23 Intrinsic motivation - to know
6, 13, 20, 27 Intrinsic motivation - toward accomplishment
4, 11, 18, 25 Intrinsic motivation - to experience stimulation
3, 10, 17, 24 Extrinsic motivation - identified
7, 14, 21, 28 Extrinsic motivation - introjected
1, 8, 15, 22 Extrinsic motivation - external regulation
5, 12, 19, 26 Amotivation

Appendix 3
Guiding questions used in the semi-structured interviews

Pre-interview

Warming-up questions:

1. Do you play games?
    a. Which ones?
    b. What do you like about games?

Main questions and sub-questions:

2. How do you feel about learning English?
    a. What do you use English for?
3. What challenges do you experience in learning English?
    a. Why?
    b. Any other difficulty?
4. How do you think these challenges in learning English could be overcome?
    a. What can be done in the English courses to help students improve that?
    b. How do you deal with this problem?
5. Do you know what Gamification is?
    a. What do you think about this technique?
    b. Have you ever seen Gamification in your studies before?
    c. Can you imagine Gamification applied at the university? And in English courses?
    d. How do you think it would affect people like you in learning English?

Post-interview

Warming-up question:

1. How did the course go?

Main questions and sub-questions:

2. How did you feel about the Gamified Moodle?
    a. Were there any elements/aspects that caught your attention?
        a. Why?
    b. Was there any element that made you stick to the course?
        a. If yes, which one?
    c. Were there any elements/aspects that you didn't like?
        a. Anything you would consider totally useless?
3. Do you think you have improved in English after this course?
    a. In what sense?
    b. Is there any task you did that specially helped improve your English?
    c. How do you feel when speaking English now?
4. If you had this course in the future, what would you change?
    a. What would you add?
    b. What would you definitely dismiss?