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Gamification in Higher Education: A Case Study in Educational Sciences

José Alexis Alonso-Sánchez[1] · Juan L Núñez Alonso[2] · Elisa Santana-Monagas[2]

Abstract
Teachers are generally focused on optimizing the teaching–learning process and fostering high levels of student engagement, participation, and motivation. To address this challenge, this work presents a gamification experience implemented to teach content related to family involvement and educational programs in two courses —one at master's degree and the other at bachelor's degree level. A total of 354 students participated in the study and shared their perceptions regarding their learning, academic performance, participation, and motivation in relation to the gamification experience. The results indicate that students perceive the gamification experience as having a positive impact on all four areas. They expressed a preference for studying the subject through gamification rather than traditional methods. This paper highlights an experience that generates positive perceptions among students and encourages higher education instructors to incorporate gamification into their teaching methods and classroom dynamics.

Keywords Educational sciences · Educational technology · Gamification · Higher education

Providing a highly engaging and meaningful learning experience for university students can be a considerable challenge. Given the high levels of boredom reported among students (Sharp et al., 2016), educators are constantly seeking ways to increase students' emotional involvement and engagement in the classroom, with the goal of enhancing both their learning experience and academic performance. One effective strategy for achieving this is gamification, a term coined by video game programmer Nick Pelling in 2002. Gamification involves integrating game elements and techniques into non-gaming contexts (Elshoubashy et al., 2023; Mohanty & Christopher, 2023). It is important

✉ Elisa Santana-Monagas
  elisa.santana@ulpgc.es

  José Alexis Alonso-Sánchez
  josealexis.alonso@ulpgc.es

  Juan L Núñez Alonso
  juanluis.nunez@ulpgc.es

1 Department of Education, University of Las Palmas de Gran Canaria, C/. Santa Juana de Arco 1, 35004 Las Palmas, Spain

2 Department of Psychology, Sociology, and Social Work, University of Las Palmas de Gran Canaria, C/. Santa Juana de Arco 1, 35004 Las Palmas, Spain

to clarify that gamification differs from game-based learning in that it applies game mechanics in non-game contexts to foster motivation and engagement in learning, whereas game-based learning involves using games as a tool for content acquisition (Delgado-Algarra, 2022). In education, gamification is rapidly gaining popularity due to its ability to motivate and involve students (Hoshang et al., 2018; Krath et al., 2021; Thomas & Baral, 2023; Wang & Tahir, 2020). In this context, the motivation to acquire knowledge is directly linked to the effectiveness of learning (Fernández-Antolín et al., 2021). Studies have shown that gamification can enrich teaching and learning processes (Hanus & Fox, 2015; Hoshang et al., 2018; Kapp, 2012; Lyons et al., 2023), improve learning capacity (Takemoto & Oe, 2021), and enhance knowledge retention, comprehension, and enjoyment of learning (Isabelle, 2020; Partovi & Razavi, 2019).

One of the key objectives outlined in the United Nations for its Agenda 2030 is to ensure inclusive, equitable, and high-quality education (Giráldez et al., 2022) while promoting lifelong learning opportunities for all (ONU, 2015). To achieve this, active methodologies that prioritize the learning process and place the student at the center are increasingly being adopted. Among these, gamification stands out as a proven strategy for delivering higher-quality education (Robledo et al., 2015; Ruiz Moral et al., 2020).

One of the most appealing aspects of gamified learning is its integration of Information and Communication Technologies (Gay & Burbridge, 2016). This integration enables students to become more self-aware and actively involved in regulating their own learning experiences (Chaiyo & Nokham, 2017). Gamification is sometimes misunderstood as merely replacing grades with points and combining them with badge—an approach known as PBL (Points, Badges, and Leaderboards). Related terms, such as "serious games" and "game-based learning" refer to the use of games and video games as tools for acquiring knowledge and developing skills. However, these approaches often have a limited impact on learning outcomes (Khaldi et al., 2023). It is crucial to view gamification not as the use of isolated tools like Socrative or Kahoot but as a comprehensive practice. This practice incorporates elements such as clear rules and objectives, point systems, narratives, leaderboards, levels, missions, rewards, rankings, and challenges (Cerda et al., 2017; Mohanty & Christopher, 2023). These components are strategically combined with other resources to address specific content and competencies, ensuring a precise and focused approach to achieving learning objectives (Ahmed & Sutton, 2017).

Given that an inadequately designed gamified experience can negatively affect student learning and motivation (Salah & Alzaghal, 2023), it is crucial for faculty members to understand the necessary elements gamified learning experiences should include to achieve their intended objective. To address this issue, the present study proposes a gamification framework aimed at encouraging higher education professors to incorporate gamification into their teaching, regardless of their area of expertise. It is important to note that, while gamification is a highly effective teaching tool, its implementation in the university context continues to be met with hesitation (Moreno et al., 2021).

Gamification in Higher Education

Numerous studies have shown that incorporating gamification into the university context positively influences both academic performance and student motivation (Fernandez-Antolin et al., 2021; Ferriz-Valero et al., 2020; Hammerschall, 2019; Killam et al., 2021; Palaniappan & Md Noor, 2022). Additionally, gamification has been found to enhance student participation in the learning process (Ho & Chen, 2023; Karakoç et al., 2022; Papazoglou & Andersen, 2014). Research also highlights gamification as an effective strategy for improving student engagement (Ab Rahman et al., 2019; Hanus & Fox, 2015; Lyons et al., 2023; Sanmugam et al., 2016). Its integration impacts various educational outcomes, including student behavior, emotional well-being, and cognitive performance (An, 2023; Carmo et al., 2020;

Melero-Cañas et al., 2021). Supporting these findings, a recent meta-analysis systematically reviewed studies on gamification's effects on cognitive, motivational, and behavioral learning, further substantiating its positive influence on these domains (Sailer & Homner, 2020).

Studies investigating students' perception of gamification in the classroom reveal that they generally enjoy these activities and find them valuable for learning (Eukel et al., 2017; Gómez-Urquiza et al., 2019). Research has also shown that students prefer gamified learning experiences over traditional classroom methods such as lectures (Cain, 2019; Eukel et al., 2017). Additionally, Eukel et al. (2017) observed that gamification not only enhances peer-to-peer learning but also provides students with fresh perspectives on course materials. In this line, a literature review by Pegalajar (2021) highlights on growing interest within the scientific community in exploring and proposing gamification-based strategies for higher education. The review also confirms students' positive attitudes toward innovative teaching methods grounded in gamification. For example, a study with medical students employed a gamification strategy that tracked daily registration data to measure student behavior and technology interaction throughout an entire course. (Grangeia et al., 2019). The results demonstrated increased participation and improved self-regulation in studying, or in other words, the management of their own behaviours, learning, and performance to improve achievements, motivation, and the learning process (Gökteke & Ocak, 2024). Similarly, Giráldez et al. (2022) examined the impact of a gamification design on STEM students over a 14-week period. Their findings revealed that while gamification initially generates a novelty effect, it eventually fosters a familiarization effect, resulting in an overall positive influence on student outcomes.

Despite the growing evidence supporting gamification, it remains a significant challenge for education, particularly in higher education institutions (Lopez-Pernas et al., 2019). Professors are striving to create more engaging learning environments by adopting innovative teaching strategies that transform traditional classes into dynamic and captivating experiences (Villegas & Alvarado, 2017). Despite these efforts, there remains a notable gap in research on how to effectively implement gamification in university settings and motivate educators to integrate it into their teaching practices (Chen et al., 2021).

Gamified learning still has a considerable way to go before being fully embraced as a teaching method in classrooms (Peñalva et al., 2019). In many universities, the authentic concept of gamification remains underutilized and is often misunderstood as traditional games. As a result, its application is frequently limited to short, isolated activities or the use of a single playful tool, without deeper exploration (Álvarez-Alonso & Echevarria Bonet,

2023; Vanduhe et al., 2020). Games are still largely perceived as a form of entertainment rather than a legitimate educational strategy (Tuparova et al., 2020). This misinterpretation is especially prevalent in teacher training programs, where the implementation of gamification tends to be even more superficial and fragmented (Cuevas Monzonís, 2021). To address these challenges, the present study seeks to explore and resolve the issues surrounding the effective application of gamification in educational institutions, particularly within teacher training faculties. improved the engagement, participation, and motivation of students.

Students' evaluation of teaching quality has become a crucial factor for students' own satisfaction (Cadena-Badilla et al., 2016; González-Peiteado & Rodríguez-López, 2014) and one of the most essential aspects in higher education. Hence, the present study aims to explore students' perceptions of a gamification experience as a learning activity within university courses. Prioritizing student satisfaction is essential, as it helps identify potential challenges in their academic and personal development (Martin et al., 2021). Improving educational quality begins with institutional changes (Penichet-Tomás et al., 2022). Since students are the primary beneficiaries of teaching practices, their perspectives are invaluable. Understanding their views enables us to bridge the gap between theory and practice while tailoring research and educational strategies to better meet their needs (Aelterman et al., 2013).

Examining student satisfaction in the university context is particularly significant, as students encounter new demands that shape their perceptions and self-evaluations. Research highlights the importance of satisfaction, showing its positive correlation with degree retention (Moron et al., 2022), academic performance, effective educational processes (Garbanzo, 2012; Medrano & Pérez, 2013), learning achievement (Chen et al., 2023), and increased social integration, well-being, and persistence (Merino-Soto et al., 2017).

Beyond these benefits, students are growing up in a digital age where interaction with technology and games is integral to their daily lives. Gamification in education aligns with this reality, equipping students for digital, technological, and workplace environments. Universities are therefore called to embrace academic and formative changes driven by societal transformations to maintain their role as catalysts for social development. This shift has redefined the role of teaching and underscored the importance of educational innovation (Vilalta, 2020). The implementation of gamification fosters experimentation and pedagogical innovation among educators, paving the way for more effective and engaging teaching methods (AlSaad & Durugbo, 2021).

The Present Study

The implementation of the gamification experience aims to achieve two primary objectives: First, it seeks to present academic content in a more engaging and dynamic manner by incorporating typical elements of gamified activities, such as point accumulation, levels (Agent Class 1, Agent Class 2, Trainee Agent, Agent 00), rewards (leveling up, chocolate, etc.), rankings, challenges (solve within a limited time, earn points redeemable for prizes, complete tasks that were not previously announced), ranks (associated with the levels achieved), point accumulation, and a narrative. In doing so, gamification indirectly enhances student learning by boosting their motivation through interactive and stimulating methods. Second, the initiative aims to promote the integration of new technological resources in university teaching and to encourage the adoption of innovative pedagogical methodologies. To this end, the present study introduces a thoughtfully designed gamification framework that could serve as a valuable tool for the educational community.

Additionally, by making this gamification experience accessible to faculty across various departments, the goal is to facilitate its application to diverse fields of knowledge. With minor adjustments to the academic content, this framework can be adapted to suit the needs of different disciplines. Finally, this study seeks to gather students' perceptions of the gamified experience and assess whether it contributed to improvements in:

1. Their learning,
2. Their academic results for the contents presented,
3. Their participation in class, and,
4. Their motivation.

Method

Participants

A total of 354 students from the Faculty of Education Sciences participated in the study. Among them, 246 identified as female, while 108 identified as male. The participants included 207 individuals enrolled in the Master's program for Teacher Training in Compulsory Secondary Education, Baccalaureate, Vocational Training, and Language Teaching, whereas 147 individuals pursuing a bachelor's degree in Primary Education. The average age of the respondents was 24.7 years (SD = 7.32; range = 18–58). The gamification for Master's students, divided into four different groups, took place between

October and November 2022 whereas for undergraduate students, also distributed in four groups, the gamification took place between March and April 2023.

Procedure

Description of the Gamification Experience

This section provides a detailed explanation of the educational gamification carried out in two courses: one at the undergraduate level and the other one at the postgraduate level.

Context In previous academic years, students encountered difficulties with the content block related to programs for family involvement and education. This content was part of two courses: "*Society, Family, and Education Relations*" in the Master's in Teacher Training for Compulsory Secondary Education, Baccalaureate, Vocational Training and Language Teaching, and "*Educational Theory, School and Family*" in the Bachelor's in Primary Education. Both courses are taught at the Faculty of Educational Sciences. The difficulties stemmed primarily from the extensive literature students needed to consult, reflecting the diversity of existing programs and their distinct characteristics, as well as the various lines of intervention. It is within this context of methodological innovation and a commitment to enhance student learning and active engagement that this work is developed within an educational innovation project approved for development in the academic year 2022–2023.

Design and Narrative In the first session of the course, an initial evaluation of the content was conducted using the group mode of the Kahoot tool (Fig. 1). This activity aimed to foster teamwork, initial cohesion, and familiarity among students. Based on the assessment results. The gamification experience was properly implemented over the following two weeks, starting from the students' prior competencies and once the fundamental knowledge of the subject had been addressed. The gamification framework was designed and hosted on wix.com (Fig. 2), a cloud-based web development platform. Using WIX as the foundation for deploying and evaluating gamification, allowed us to rely on many resources including Educaplay (a web platform that allows teachers to create different types of multimedia educational activities), Powtoon (an educational tool for creating various types of video presentations), YouTube and Quizizz (an application for creating customized quizzes in a fun and engaging manner) to carry out different games or dynamics that were integrated into the web. The gamification experience was structured around a series of missions, which were tackled in groups. Initially, students watched a motivational video (Fig. 3). Using clues from the video, they solved a riddle to unlock a basic "escape room" padlock, granting access to six missions.

The narrative placed students in the role of recruits at a spy training center, tasked with completing missions to ascend through ranks, ultimately becoming a "Special Agent.". The missions tested students' knowledge of course content and encouraged collaborative problem-solving. Of the six missions, four were group-based, while two required individual effort. To proceed to the next mission, students needed to successfully complete the previous one, with progress verified through a Google Form submission. As students advanced, they earned rank and badges. These accomplishments contributed bonus points to their overall course evaluation, which also included a final exam and portfolio submissions.

Fig. 1 Initial evaluation question designed with Kahoot

Fig. 2 Cover of the gamification experience designed on wix. com

Fig. 3 Motivational video

The first mission focused on fundamental concepts of positive parenting through a timed word search to promote motivation, engagement, performance, and enjoyment (Yildirim, 2016), where students had to identify the basic principles covered in the classroom. The second mission addressed parenting styles that influence family involvement in educational centers. To complete this mission, students watched a video that paused at various points to present questions. Correct answers allowed them to continue watching, while incorrect responses required them to try again (see Fig. 4).

The third mission introduced the basic concepts of family formation, where students were tasked with organizing various options (e.g., positive communication) into the different areas usually addressed in various parenting programs (e.g., social skills). In the fourth mission, they matched different parenting models with their characteristics. For each of the missions, the necessary resources (regulations, scientific articles, etc.) were made available in the course's virtual classroom to ensure students had the tools to succeed. From this point, the individual tasks began with missions 5 and 6. The fifth mission required students to complete a Quizizz questionnaire featuring questions based on the course content block. The sixth and final mission served as the conclusion of the gamification experience, where students evaluated the activity, itself using a Google form (Fig. 5).

Fig. 4 Capture from mission 4 video

Fig. 5 Presentation of mission 6

Measures

The evaluation of the gamification experience, carried out as Mission 6, involved administering an adapted questionnaire recently utilized in gamification and "escape room" experiences (López-Pernas et al., 2019). This adaptation was made given that the questionnaire is designed to assess a gamification experience, but it specifically focused on evaluating an escape room experience. Therefore, we changed this specification to "gamification experience", thus evaluating the developed experience in a more general way and referring to it as the set of activities developed on the WIX platform and the initial assessment Kahoot. This questionnaire gathered students' perceptions of the gamification activity as a learning activity, assessing aspects such as its organization, difficulty, the guidance provided by the instructor before and during its implementation, and its impact on content learning, participation, and motivation. Additionally, it examined whether they preferred this type of activity over traditional sessions. Sociodemographic questions, such as age and gender, were also included. Exemplar items included: "*Gamification allowed me to improve my knowledge of the subject*", "*Overall, gamification enhanced my motivation regarding the course work*" and "*I believe I will achieve better results with gamification than I would with other traditional teaching activities*.". In this latter case, we

refer to the most common type of session in university teaching: the lecture (Tronchoni et al., 2022).

The researchers responsible for administering the questionnaire did not know the students nor were they, their professors. Responses were given on a 5-point Likert scale ranging from strongly disagree to strongly agree. The last question: "*What is your overall opinion about the gamification experience?*" was answered following a scale from very poor to very good. The McDonnald's Omega for the scale was of 0.95, displaying an excellent reliability.

Results

Mean and standard deviations, along with the number of answers (N) for each item are shown in Table 1. Most questions were negatively skewed, suggesting that students generally had positive perceptions of the gamification experience, that is, in the gamification process itself, as this was clarified to them during the administration of the questionnaire, avoiding a focus on engaging activities like Kahoot, etc. Question 4 ("The gamification was fun") stands out with a positive skewness of 0.44, indicating a slight clustering of responses toward the lower end of the scale, reflecting more neutral or less favourable views on this aspect. Furthermore, questions such as Q10-Q14, while negatively skewed, show fewer extreme values (e.g., Q10: −0.79), suggesting a broader distribution of opinions on motivation and knowledge improvement compared to other items. Regarding

kurtosis results, a positive kurtosis indicates a more peaked distribution, with most responses concentrated around the mean, while negative kurtosis suggests a flatter distribution. For items like Q2, Q3, and Q8 (kurtosis > 2), responses are tightly clustered around the higher Likert scale values, reflecting strong consensus among students on recommending gamification, enjoying teamwork, and desiring similar activities in other subjects. Question 4 exhibits a slight negative kurtosis (−0.36), indicating a relatively flat distribution with more diverse opinions on whether the gamification was fun. Most other questions (e.g., Q6-Q14) have kurtosis values between 0 and 2, showing a moderately peaked distribution, indicating general agreement but with some variability.

Discussion

In relation to the first objectives, it can be concluded that the results both demonstrate and emphasize the four described benefits outlined in this work. Specifically, the results validate the first benefit: the data suggest that gamification influences students' perceptions of their own learning. Participants reported that gamification allowed them to enhance their subject knowledge (M = 4.23, SD = 0.96) and that they learned more through the gamification experience than they would have through traditional teaching methods (i.e., a lecture; M = 4.03, SD = 1.09). These findings align with previous research, which has shown enhancements in the learning processes through gamification (Hoshang et al., 2018; Lyons

Table 1 Results from the student survey

Question	Mean	SD	Mode	Skewness	Kurtosis
1. In general, I like to play (video games, board games, etc.)	4.22	.95	5	−1.44	2.10
2. I would like other subjects to include gamification activities like this one	4.28	.94	5	−1.69	3.02
3. Would you recommend other students to participate in this gamification experience (even if it did not influence the grade)	4.23	.95	5	−1.52	2.34
4. The gamification was fun	2.49	1.08	2	.44	-.36
5. The gamification was well organised	4.08	1.03	4	−1.36	1.65
6. The initial orientation of the activity was sufficient	4.00	1.01	4	−1.14	1.02
7. The guidance in the development of the activity was adequate	4.10	.95	4	−1.29	1.67
8. I enjoyed doing the gamification in a team	4.33	.99	5	−1.73	2.75
9. The gamification allowed me to improve my knowledge of the subject	4.23	.96	5	−1.44	2.00
10. The gamification experience encouraged me to participate more in the classroom	3.83	1.1	5	-.77	.13
11. In general, gamification improved my motivation to work on the subject	3.93	1.09	5	−1.01	.51
12. I prefer to work on the subject with gamification experiences rather than with traditional teaching		1.09	5	−1.13	.70
13. I learnt more with the gamification experience than I would have learnt with other traditional teaching activities		1.14	5	-.71	-.31
14. I believe that I will get better results with the gamification experience than I would have achieved with other traditional teaching activities	3.94	1.10	5	-.92	.17
15. What is your general opinion about the gamification experience?	4.43	.71	5	1.27	1.94

Note. N = 354. Answers to questions 1 to 14 were answered in a 5-point Likert scale from 1 = Totally disagree to 5 = Totally agree. Question 15 was answered in a 5-point Likert scale from 1 = very bad to 5 = very good

et al., 2023; Sailer & Homner, 2020), as well as increases in the ability to learn (Takemoto & Oe, 2021) and improved knowledge retention and understanding (Isabelle, 2020; Partovi & Razavi, 2019).

Moreover, our results confirmed the second benefit: students perceive that the implementation of gamified experiences improves academic outcomes (M = 3.94, SD = 1.10). Similarly, numerous studies have demonstrated that incorporating gamification in university contexts have a positive impact on academic performance (Fernandez-Antolin et al., 2021; Ferriz-Valero et al., 2020; Hammerschall, 2019; Killam et al., 2021; Palaniappan & Md Noor, 2022; Pàmies et al., 2022). Regarding the third benefit, the results indicate that gamification contributes to increased student participation in class (M = 3.83, SD = 1.10). This finding aligns closely with other studies that report how such experiences promote student participation and engagement in the classroom (Grangeia et al., 2019; Ho & Chen, 2023; Karakoç et al., 2022; Papazoglou & Andersen, 2014). Finally, evidence from the present study confirms the fourth and last benefit: participants perceive that gamification enhances their motivation toward the subject matter studied in the course (M = 3.93, SD = 1.09). Similarly, other studies have noted improvements in motivation when gamification is integrated into classroom activities (Fernández-Antolín et al., 2021; Ferriz-Valero et al., 2020; Killam et al., 2021; Sailer & Homner, 2020).

As for the gamification experience overall, the results indicate that students hold a highly positive perception (M = 4.43, SD = 0.71). Furthermore, they prefer studying the subject through gamified experiences rather than traditional teaching methods, such as lectures (M = 4.03, SD = 1.09). Earlier research has also demonstrated that students favour the integration of gamification into educational materials compared to conventional classroom approaches (Cain, 2019; Eukel et al., 2017; Legaki et al., 2020).

Regarding the second objective, it can be stated that the fundamental elements of a broadly designed gamification experience were incorporated. Specifically, elements such as levels, rewards, rankings, challenges, missions, ranks, point accumulation, and a narrative were included (Oguta et al., 2023), all within a university environment. This promotes the integration of such technological resources in higher education.

Additionally, the gamification experience has been made available to faculty members from various departments, allowing them to adapt it to their fields of knowledge. easily achieved by substituting the academic content with material relevant to each professor's subject area. However, we must remember the novelty effect to avoid mitigating this effect, so it is advisable to use an experience of this type only with a portion of the content and not with all of it, especially with the more complex ones, to facilitate their learning and

within a very specific time frame (Berglund & Jedel, 2023). If we used it continuously, it would not have the same positive impact. The gamification experience, hosted and shared on a free website (WIX), allows any interested teacher to access, copy, and customize it. To adapt the content, educators simply need to access each mission and replace the proposed academic material with their own. Missions can also be modified by removing existing ones or embedding new ones using tools like Powtoon or Quizziz, which are also freely accessible. This flexibility enables each teacher to dedicate as much or as little time as they wish to customize the gamification experience for their classroom.

The university is encouraged to implement academic and developmental innovations to enhance student learning. Collectively, this study addresses several gaps in the literature. On one hand, it presents findings on students' perceptions regarding a comprehensive gamification experience in higher education, an area that remains underexplored in the research community. Gamification is not merely the application of a single IT resource at a specific moment but rather a complex process. With this understanding, the present work develops a complete gamification experience, integrating elements such as narrative, point accumulation, levels, challenges, rewards, rankings, badges, and missions. On the other hand, this study provides data to encourage the use of gamification by professors. It also includes training – already conducted and set to continue – aimed at equipping other faculty members at our university to integrate gamification into their teaching practices effectively.

Limitations and Future Directions

Finally, although this study offers valuable insights into university students' perceptions, certain limitations must be acknowledged. First, only student's perceptions were measured, leaving aspects such as academic performance, motivation, or participation unexplored. Future research could examine these dimensions to better understand their relationships with gamification. Additionally, the participant pool lacked gender balance, reflecting the predominant enrolment of females in education sciences, which limits the generalizability of the findings. The perceptions and experiences of one gender may be overrepresented, which could potentially influence the results, particularly regarding the generalisation of the findings, and in areas related to social or behavioural factors, such as engagement or motivation. We must bear in mind that, as an example, in programming courses, men tend to achieve better results and report higher enjoyment and comfort with gamified tools compared to women. In contrast, women show better learning outcomes in non-gamified settings, suggesting that gamification might hinder their learning while modestly benefiting men (Mellado et al., 2024).

Using a more gender-balanced sample, increasing the sample size, and replicating the study across diverse undergraduate and postgraduate programs could be advantageous (Brendel & Muntermann, 2022; Van Epps et al., 2022). Future studies should aim for a more balanced gender representation to ensure that the results reflect the experiences of both male and female students. This will allow for a more comprehensive understanding of how gamification may impact different student groups. It could also be suggested that researchers explore gender as a variable in relation to gamification, possibly through subgroup analyses. The effects of gender imbalance in future research could be mitigated by using stratified sampling to ensure balanced gender representation, or by conducting separate analyses for male and female students to identify any significant differences in perceptions of gamification. Moreover, the study's non-experimental nature precludes causal interpretations of the results, and its cross-sectional design relies on self-reported measures, warranting cautious interpretation. Adopting a longitudinal design in future research would allow for the examination of temporal relationships between variables, providing deeper insights into the long-term impact of gamification on educational outcomes. Not to mention the use of a single data source carries certain risks. On the one hand, there is the possibility that the results may reflect a biased viewpoint or perspective, which eliminates the opportunity to verify or contrast the information from different angles. This can weaken the robustness and complexity of the conclusions. Data triangulation, such as direct classroom observations and teacher reflections, can provide complementary evidence to enhance the validity and reliability of the findings, offering a more comprehensive and balanced view of the issue at hand.

Practical Implications

We must bear in mind that gamification often requires specific platforms or software to facilitate game-based learning activities. Professors may need to invest in Learning Management Systems (LMS) that support gamification features, such as badges, leaderboards, or game-like assessments. Both instructors and students may need access to computers, tablets, or smartphones to participate in gamified activities. In classrooms where technology is not readily available, this could require additional resources. Additionally, technical problems such as software malfunctions, internet connectivity issues, or platform compatibility challenges can disrupt the smooth implementation of gamification.

Regarding the teaching staff, we will begin by noting that professors may require training on how to effectively use gamification tools and how to design meaningful gamified learning experiences. This could involve workshops, online courses, or consultations with instructional design experts.

Furthermore, some professors may resist adopting gamification due to a preference for traditional teaching methods or a lack of familiarity with technology. Overcoming this resistance requires demonstrating the effectiveness of gamification and offering the appropriate training and support to build confidence in using new methods.

The time investment required to integrate gamification elements into the course curriculum is also relevant. This includes designing game mechanics (such as point systems, levels, or challenges) that align with learning objectives. For many professors, this could mean a significant amount of time spent planning and adapting traditional lesson plans to incorporate these new elements. Professors already face heavy workloads with lesson planning, grading, and administrative tasks, so developing gamified content, testing it, and troubleshooting issues could add to that burden. This challenge can be mitigated by providing clear guidelines, templates, and support structures to help professors streamline the process.

Regarding assessment, it may be possible to opt for the use of rubrics or formative assessments instead of traditional exams or essays. One of the biggest challenges in gamifying education is ensuring that the game mechanics are not distracting or irrelevant to the learning objectives. It is essential for professors to maintain focus on educational outcomes while creating engaging, game-like activities. Gamification elements should support, not overshadow, the curriculum's goals. As for students, we must note that they may not be familiar with gamified learning environments, so there may be a need for orientation or initial training sessions to explain how the system works and how students can maximize their learning experiences. At the same time, while gamification may be engaging for many students, others may not enjoy the game-like elements or may perceive them as superficial. It is important for professors to assess student reactions and adjust the gamification elements based on feedback, ensuring that the approach meets the diverse needs of the class.

Conclusions

This article presents findings from a gamification implementation in a higher education setting, aimed at making academic content more engaging. By integrating game elements and digital technologies familiar to students, the gamification experience reflected their digital environment. Integrating such experiences, justified by the aforementioned benefits on motivation, participation, enhanced learning, and academic performance, could help establish gamification as a standard methodology within the university level.

The present findings offer novel insights into the instructional effectiveness of gamification to enhance the learning

of courses covering aspects of family participation and development programs. Results indicate that skilfully implemented gamification positively impacts students' perceptions of their participation, motivation, and learning. Additionally, the study emphasizes the role of universities in addressing academic and societal challenges, advocating for educational innovation to maintain their role as catalysts for social progress. Gamification fosters pedagogical experimentation and innovation, encouraging educators to develop engaging and effective teaching methods.

For successful implementation, teachers must receive targeted training in the principles, benefits, and practical application of gamification. Workshops are recommended over traditional courses to provide hands-on experience in designing and integrating gamified activities. Furthermore, conducting focus groups with students and professors could offer diverse perspectives and richer insights, facilitating a deeper understanding of gamification's impact.

Overall, the positive student perceptions underscore the potential of gamification as an effective teaching strategy. To promote its adoption across departments and programs, it is crucial to focus on the training and motivation of professors. Encouraging educators to embrace gamification, supported by scientific evidence of its benefits, prepares future professionals and enhances the quality of higher education.

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