

GAMIFICATION'S ROLE IN STUDENT ENGAGEMENT IN HIGHER EDUCATION

Ruxandra-Irina POPESCU^{a*}, Oana-Matilda SABIE^b, Iulian Marian TRUȘCĂ^c

^a Bucharest University of Economic Studies, Romania

^b Bucharest University of Economic Studies, Romania

^c Bucharest University of Economic Studies, Romania

ABSTRACT

Perhaps one of the major challenges facing teachers around the world is to actively involve as many students as possible in the teaching and learning process. In today's digital society, a solution to this could be online gamification. The concept of gamification has become increasingly used in the learning process. Essentially, gamification is an interactive learning approach that creates a game-like scenario around the curriculum and course objectives to enhance the student experience. Online gamification adds in plus the digital side, similar to video games. However, despite the growing scientific literature in this area, there are still many questions about the real impact and benefits of online gamification in education.

Thus, the main objective of the research is to investigate the students' perception of online gamification role on student engagement in the learning process. The research method used is a qualitative one and the research tool is the interview. At the same time, the sample includes students of different nationalities, coming from five important university centers in Europe, all participating in an intensive course within the Erasmus+ project TERRAGOV on the subject of governance and resilience.

The research results highlight the fact that the e-learning approach through gamification generates the dose of enthusiasm that students sometimes need in classes. Furthermore, the development of digital and other new skills highlights how incorporating this method can be a tool that teachers can use to maximize student engagement. Consequently, online gamification in higher education can have a significant role on the involvement and active participation of students in the education process.

KEYWORDS: *gamification, students, engagement, higher education.*

INTRODUCTION

Education has changed profoundly over the years. The introduction of new elements in the learning process came along with technological advancement. In the new contemporary paradigm, one of the biggest challenges facing teachers is to actively involve as many students as possible in the learning process. This reality has led to an increase in attention in the field of learning through gamification. Estimated to reach a global market value of USD 191 billion by 2034 (Precedence Research, 2023), gamification has become an increasingly present part of education in recent times. However, game-based learning as a teaching strategy is still used sparingly in higher education, especially in Romania. The concept of gamification in higher education has become popular in recent years. However, this play-in-learning perspective is not a recent development. It has been around since ancient times, in more traditional ways, admittedly. In the contemporary era, it can be concluded that the main major change is the student's level of expectation regarding this approach, as the new generations are exposed to an impressive level of information every day and their creativity is matched. Gamification in higher education is a teaching methodology that creates a game-like scenario around the curriculum

* Corresponding author. E-mail address: irina.popescu@man.ase.ro

and course objectives. Moreover, gamification systematically leverages the different elements, characteristics, and principles of game culture outside of a traditional game context, using various activities and rewards to promote student engagement. A good example of this is online application-based learning, where students can earn virtual trophies and progress to more advanced levels as they interact with the platform and players. Apps like these can provide students with new and fun learning opportunities, as well as a more stimulating experience overall, which yields benefits when it comes to knowledge retention, sustained engagement, and social interactions among students. Thus, the purpose of these game systems is to train, motivate and engage students to participate in course activities.

1. LITERATURE REVIEW

The term gamification was first used by British developer Nick Pelling in 2002 as a reaction to the increasing number of mechanized devices in everyday life. Later, only in the second half of 2010, the term came to be widely adopted and acquired different connotations, increasing in Google searches since 2011 (Google Trends, 2018). The specialized literature has proposed various definitions of gamification, but there is still no unanimously accepted one. Deterding et al. (2011) provides a popular and widely-used definition of the term, defining it as the incorporation of game design features into non-game settings. This belief is reinforced by Zichermann and Cunningham (2011), who describe gamification as the use of game mechanics, aesthetics and thinking in non-game contexts to engage users and solve problems. Thus, this concept designates the presence or addition of game characteristics in activities that are not traditionally considered games. Online games have a special place, which can be applied in various fields of activity – education, business, medicine, etc. The literature on gamification in higher education settings shows a variety of approaches. Various authors provide an overview of the implementation, benefits, and challenges of gamification in higher education. For example, Fisher, Beedle and Rouse (2014) surveyed 70 business school students in an attempt to assess their experiences and attitudes towards gamification. Findings suggest that most participants were familiar with the concept and agreed that gamification boosts engagement and motivation. Therefore, they perceive gamification as a useful tool for improving learning. In this sense, some researchers have concluded that gamification is a useful and modern teaching strategy. Also, to increase student engagement and motivation through gamification, certain specific game elements are needed. There are several tools that can make a difference, but the most important of these are:

- Digital badges, which may be won in many learning contexts, are validated indicators of achievements, skills, qualities, or interests (Grant, 2013). They affect engagement and promote some learning gains. The effectiveness of badges depends on various factors, for example, the demographics of the users, the purpose of the tool, and the relevance of the badges to encourage appropriate behavior. As students move through different levels and accumulate badges associated with specific achievements, badges provide validation. Badges also serve as a record of an individual's past and present successes. Thus, digital badges tend to influence motivation to learn because they provide status and indicate levels of achievement;
- Rankings are widely used in several fields to increase user engagement (Jia et al., 2017). They are identified as one of the essential ingredients for game design. Leaderboards also generate a sense of fairness for players during competition and allow users to see their achievements in comparison to others. They also create a sense of belonging to a group, but also competition between participants. Thus, the implementation of rankings can have a positive impact on student performance;
- Points and levels are widely used in gamified environments. Zichermann and Cunningham (2011) consider points as an essential part of any gamified design. Graham (2010) also stated

that it is important to include learning objectives instead of just focusing on points. However, in most cases there will be a motivation to earn points;

- Progress tracking is a necessary element of every game (Šćepanović, Žarić, N. & Matijević, 2015). This method, applied in an educational context, serves as a feedback element. Therefore, this game element allows users to know how much progress they have made. Progress tracking is usually graphically represented, and one of the most effective ways to use this mechanic in games is through character upgrades or progress bars (Raymer, 2011).

A primary problem faced by instructors today is to engage learners during the process of instruction and learning in the classroom. The elements that affect students' learning abilities include their prior knowledge, motivation for gaining knowledge, and the manner in which the material is presented to them (Elteğani & Butgereit, 2015). According to Handelsman et al. (2005), there are a variety of learning styles among the students, which also plays a role in the manner in which they participate in the activities that are coordinated by the teachers. When it comes to maintaining the students' attention and engagement, the educator is faced with a challenge that leaves them in a confusing situation. This is due to the fact that the level of participation of students is a significant component in determining their level of attainment and performance, which may be evaluated by either formative or summative assessment (Ab Rahman, Ahmad & Hashim, 2019). There have been a number of studies that have been conducted on and discuss gamification as a method to increase the level of engagement among students. Through the expansion of the strategies that may be implemented by educators in the process of producing educational material, technological advancements have made it possible to include game components into settings that are not used for gaming (Laskowski & Badurowicz, 2014; Deif, 2017). Due to the fact that not all teachers are creative enough to incorporate gamification into their lessons, online platforms such as Kahoot!, Quizizz, Socrative, and Quizalize offer instructors a wide variety of options to choose from in terms of lesson plans and activities that can captivate and inspire students' motivation, as well as increase students' engagement while they are learning in the classroom (Dixson, 2015; Hanus & Fox, 2015).

Given the current context, gamification should be taken into consideration within higher education institutions that want to attract students and perform in an increasingly competitive academic market.

2. METHODOLOGY OF THE RESEARCH

The general objective of the research is to investigate the students' perception of online gamification role on student engagement in the learning process.

Regarding the specific scientific objectives of the research, they are:

Specific Objective 1: Determine how online gamification influences student engagement.

Specific objective 2: Analyzing the learning experience of students during a gamified course.

Specific objective 3: Exploring student attitudes and perceptions towards gamification.

Specific objective 4: Investigate how different game elements contribute to the learning experience.

The research questions formulated below are part of the category of qualitative questions, which aim to collect non-statistical information about the experiences, observations and perceptions of the research subjects. These questions are dynamic, meaning that researchers can change or refine the research question as they review the literature and develop a framework for the study.

RQ1: What are students' perceptions of course gamification?

RQ2: What are the main benefits of using gamification in higher education?

RQ3: What game elements effectively contribute to students' learning experience through gamification?

RQ4: What are the limits of gamification in higher education?

According to Şandor (2013), the interview is a qualitative research approach that employs a limited number of cases while striving to extract extensive information from each participant. Quantitative approaches remain at the surface of the phenomena and attempt to determine the same things from as

many examples as feasible. When using qualitative approaches, we make an effort to delve deeply and learn as much as we can from each topic, capturing both the unique aspects of each instance and the aspects that are shared by all.

Qualitative research, compared to quantitative research, is more about understanding the respondent and their opinion, working with qualitative data rather than numerical data. Thus, the answers received can outline an overview of the researched theme. Following the application of the interview guide, answers of great importance for the researched topic will be obtained. In addition, being a teaching method at the beginning of its journey in our country, the interview guide will also be useful for understanding the concept of online gamification in higher education.

Among the advantages of this research method are ensuring control over the sequence of questions, collecting spontaneous responses, ensuring personal responses, and ensuring that all questions are answered (Bailey, 1982). The disadvantages are determined by the long time, the impossibility of consulting some documents, inconveniences related to the psychological disposition of the interviewees, the lack of anonymity (Bailey, 1982).

Participants and data collection

The target population of this study was formed by students from 5 important university centers in Europe: Bucharest University of Economic Studies, University Complutense of Madrid, University of Iceland, University of Zagreb, and University of Vilnius. The respondents were selected subjectively and voluntarily. At the same time, there were respondents from each university participating in the project. To collect answers in an efficient way, we used the Zoom communication platform. These answers were collected 3 weeks after the end of the project. There were interview sessions with each respondent, and the response time was approximately 30 minutes. The collection of all answers was done in 2 weeks and there were 10 respondents, being 2 students from each university. All the specific quotations from the answers were anonymized using the term 'Respondent 1' ... 'Respondent 6'.

Respondent 1 and 2 – Bucharest University of Economic Studies, Romania;

Respondent 3 and 4 – University Complutense of Madrid, Spain;

Respondent 5 and 6 – University of Iceland, Iceland;

Respondent 7 and 8 – University of Zagreb, Croatia;

Respondent 9 and 10 – University of Vilnius, Lithuania.

The data collected from these respondents are significant for our research because they come from students who were present in the gamified online course and actively participated in this activity. Besides the fact that they asked many questions, they told us that some of them also have this gamified approach in the universities they come from. They therefore also presented their perspective, from their university backgrounds, additionally, being a plus from a multicultural point of view. Thus, the answers are measurable and provide real information about the role of online gamification in students' engagement in classes.

3. RESULTS AND DISCUSSIONS

As previously stated, our study objectives aim to better understand how gamified online activities might improve active learning, or more specifically, if online class games can transform students from passive to active. We gain interesting information from the responses the participants gave us. We started with the first question: Q1. In your opinion, what does gamification mean in the university environment? According to all of the respondents, gamification is an enjoyable and captivating method of instruction that increases student happiness, engagement, as it allows them to become more involved with technology and it also deliver results in a quickly manner. The vast majority of the respondents who took the interview saw gamification as a way to get students more invested in their coursework, which in turn boosts their critical thinking and creativity skills through the application of previously learnt materials. Selection of respondents' answers:

"Gamification is a hands-on simulation of what you learn in theory." (R2)

"I think gamification is the most fun and engaging way to learn that appeals to most students, because they are more connected to the technology and the results appear in a short time." (R3)

"This gamification is a strategy that motivates students to engage in classes. We all have a mobile phone, and everyone is more likely to open the app and participate because we don't want to be 'left out' or marginalized." (R7)

"By gamification I mean a creative way in which people can be involved, sometimes involuntarily, in different actions and in different fields." (R9)

The second question: Q2. What do you think are the main effects identified by implementing online gamification in the course? intended to discover respondents' perception regarding the positive or negative impact of online gamification on classes activities. The main effects presented by students referred to the ease with which they adapted to these teaching and learning methods, how good they felt, and even the fact that they had fun during the learning process, more easily assimilating information and understanding practical realities (R3, R6, R10). R8 reported some difficulties in playing the game, since it was a beta version with some problems, but admitted that this approach significantly enhances the engagement of new generations in the classroom. Selection of respondents' answers:

"I found the approach super dynamic, nothing hard and even fun. I immediately picked up the phone and got involved because I was curious and wanted to win." (R3)

"It was something unexpected. After all the lectures given by the teachers, the game came as a gift to me. Even though I wasn't really into public policy, the game made me want to explore more of the field from the first try." (R6)

"To be honest, I wasn't very excited at first. It can be seen that it is still a beta version with some bugs. The game still needs to be improved, but at least it's a good thing that they thought about creating this addictive game. It's definitely a much better way to get the new generations to be active in class." (R8)

"The fact that the game gives you instant feedback and you can play until you get the best score was satisfying for me. At the same time, the situations are very realistic and help me to better understand contemporary public administrations." (R10)

The third question: Q3. What do you think are the benefits to students of gamifying a course? intended to identify the main benefits of gamifying class activities for students, and to answer to research question number 2 (RQ2). According to R1 the primary benefits highlighted include the acquisition of new abilities, particularly digital competencies, enhanced participation in class, and increased comfort in the readiness to make errors. She/ he felt less nervous upon receiving the incorrect response, in contrast to a typical class setting. R4 and R5 mentioned that by leveraging gamification students can learn to focus and stay motivated. The effects are noticeable right away as they go from being on the sidelines to being actively involved. One may easily understand the desire to be more active, to discuss and argue certain topics with coworkers. Another major benefit of gamification is the boost it gives to students, who could use it greatly at times. This is a generation that, from time to time, need affirmation more and more than that of previous generations. To be acknowledged, to have a huge number of followers, and to be respected is something that the majority of us desire, possibly even more than past generations did. The gamification learning method can show the results instantly, and so validate students' knowledge and increase self-confidence. Another benefit is that the burden of grading teachers is alleviated thanks to course gamification. Online learners may relax and enjoy the learning process more when gamification is used for evaluations. Getting the highest possible score is no longer a priority in class, yet students are just as engaged as they were when professors used to offer them bonus points for traditional classroom responses like raising their hands (R7). Selection of respondents' answers:

"Among the main benefits we have identified are the development of new skills, including digital, our more active involvement during class, as well as an increase in comfort when it comes to the

willingness to make mistakes. For example, when I participated in the gamified course, I was no longer so tense when I got the answer wrong, compared to a normal class." (R1)

"Through gamification I believe that students can develop their ability to be attentive and motivated. They turn from passive observers (as in many cases from traditional courses) into active participants, and the results are immediately visible. It is easy to see the desire to be more involved, to answer and debate with colleagues' certain matters, such as why some chose that path and others another answer and so on." (R4)

"I think that a great advantage of gamification is precisely the encouragement of learners, who sometimes need it so much. Through this approach it is noticed when a student succeeds and receives various rewards, even if they may seem mundane (1st place in a virtual ranking, a badge, etc.) We are a generation that needs validation more and more from time to time other. Most of us want to be recognized, to have large followings and to be appreciated perhaps more than previous generations did." (R5)

"A big benefit of course gamification is removing the stress of teacher evaluation. By using gamification for assessments in online learning, learners enjoy a relaxed learning experience. There is no more stress about getting the maximum score during class, although the active engagement is even greater than when teachers promise us certain extra points if we answer and raise our hands in the classic way in class." (R7)

The fourth question: Q4: What do you think are the limitations of online course gamification? was designed to identify in respondents' views what are the main limitations to the use of online gamification method in classes. The most common limits pointed by students were: the feeling of competitiveness, that could in time lead to a decrease in students' curiosity of finding and learning new competences (R1); the decreasing of interest in engaging in further activities, if the student required a certain degree of contentment (R3); another potential drawback of gamification mentioned by an instructor/ teacher is the inability to precisely assess the knowledge retained by the learner after the game ends (R5). Some students undoubtedly acquired information, although it is ambiguous if others joined only for engagement or if they leave with relevant particular expertise.; while R10 mention as a significant constraint the fact that not all students like playing, and not all of them possess digital abilities. Selection of respondents' answers:

"For me, in the beginning, I felt there was a sense of competitiveness, which I was happy about, but as time went on, that feeling disappeared. Because the gap between my score and the first 10 (top 10) was getting farther and farther away, it seemed to me that whatever I was doing was wrong. At some point, the feeling of curiosity gradually disappears, if new elements, new levels, new tools do not appear, which will continue to attract the beneficiaries of the learning process." (R1)

"Because I hit my target and came out in a good place in the first game, I'm not interested in doing anything else. Even though the maximum level is still far away, I no longer have the necessary satisfaction. I feel like I've succeeded once, so I don't feel the need anymore." (R3)

"Probably a minus of gamification is the fact that you cannot quantify exactly what the student is left with after the game is over. As a teacher I believe that you don't know exactly if the targets were met for all students. Only if you have set very well the targets you want to achieve through this approach. A few students definitely learned things, but it's not clear if some participated just to be engaged in the activity or if they left with some specialized knowledge that they can apply in real life." (R5)

"A major limitation can be that not all students like to play and not all have digital skills. Some of them are not attracted to technology and may not want to take part. You can't force anyone, and if someone doesn't want to be involved, I think it's difficult to get them to participate." (R10)

The answers to the fifth question: Q5. How do you think each game element contributes to optimizing student learning? highlighted the main features of online games that engage students in the learning process. Earning points is an important element since they dictate the place on the podium (R2, R9). Accumulating points and badges encourages and inspires learners (R8). For those who thrive in highly competitive environments, they serve as a useful tool for maintaining attention and delivering the

necessary amount of dopamine. The ranking, as an element, also play an important role, according to R2, R5, R9. Selection of respondents' answers:

"There are several elements that contribute to the success of a game. For example, points play an essential role because they determine the position in the leaderboard. Points provide motivation and boost students' enthusiasm. They are a tool that keeps you focused and gives you the dose of dopamine you need, especially if you are a more competitive person. Another element is the ranking. Every time I see a change in the leaderboard, I think about how others have more points than me, so they are more motivated, and I want to get more involved, collect more points and climb the leaderboard. Points and leaderboards are staples in a video game and have equally beneficial effects even in a gamified online classroom game." (R2)

"I think this ranking at the end intrigues us and makes us competitive. It makes us compare ourselves to others and want to be above them. It's natural to want to win, to be the best of all in this gamified course. Ranking has to be a part of any game if you want people to play it. And if with the ranking comes a final reward - a chocolate, a gift, a certain advantage in the final grade or other things - then this is the perfect recipe to keep students engaged." (R5)

"Badges based on results are important to me. A champion badge, even if it's virtual, shows other participants that you're the best, that you're more special than them. For me, these badges are a way of social validation, in this case, the validation of colleagues in the group." (R8)

"Rankings and points are probably the most important elements of the game because we're all motivated by that, at least in the beginning. Without earned points, you cannot see progress. It helps to see what level you were at when you first tried and where you are now. I think it's healthy to see progress from game to game." (R9)

Question Q6. What distinctive elements did you specifically notice about this Terragov Risk Simulation Game? was designed to identify respondents' perception regarding specific features of Terragov Risk Simulation Game. The respondents pointed out elements like: changes in budgets, play roles, the given sectors where students should think and allocate money, the stakeholders' diversity, as well as the founding opportunities. Selection of respondents' answers:

"As distinctive elements, I've seen those changes in the game from year to year, as well as budget changes. Basically, at the beginning of the game you start as the mayor with a certain budget that you have to manage effectively to increase the satisfaction of the citizens in relation to different areas: transport, education, the protection system, the medical system and so on. Then when the next year starts, you have a different budget based on the realities of those times. A pandemic, a natural disaster, or even nothing can happen, and the budget goes up or down. It depends on the game's algorithm what changes occur, depending on how well you managed the local budget in the previous year. Thus, there is something new about this game, to have such surprises, which excite you. This brings you closer to reality and makes you more curious." (R4)

"One thing that caught my attention from the beginning was the sectors where you can allocate money. I thought it was very interesting that we could draw the budget in areas such as education, health, etc. It is important to know that your decisions have an impact on the quality of life of citizens." (R3)

"Certainly, the satisfaction of the citizens, depending on which policies you choose to fund, is a distinctive element that brings the game closer to the real world. You have the chance to be mayor and to see your mandate to the end, to observe changes from year to year. If the citizens have reached the necessary levels of satisfaction, you have the chance to finish the mandate well. This is how it should be in contemporary life. If the mayors (politicians) have done their job in the 4 years (or as long as they have the mandate in their country) in all the sectors in the game and have brought satisfaction among the citizens, then let them be elected once more if they still run for certain positions of power. It's not right for society to do much only in the last year, as it usually happens when there is an election campaign. That is my honest opinion." (R2)

"The distinguishing elements of this game are the crises and moments where the world can change significantly from year to year, as well as funding opportunities." (R7)

Question number seven: Q7. What do you think is the role of the teacher in a gamified course? tried to identify respondents' opinion on teachers' role in an online gamification class. The responses pointed out that teachers play an essential part as they are responsible for delivering the subject matter. They may clarify the events occurring during the game and collaboratively explore innovative design components and the incorporation of new game elements. They may also provide a summary at the conclusion of the game about the students' perceptions, the strategies employed by some to achieve the highest degree of citizen satisfaction, or the challenges faced by others in completing the game. The professors play a potentially important role, since they will identify the talks and motivating factors to engage in post-game and the areas where the student requires guidance (R1, R5, R8, R9). Selection of respondents' answers:

"Teachers have an important role because, after all, the subject is done by them. They can further explain what is happening during the game and think about new design aspects and the introduction of new game elements together with the students. They can also debrief at the end of the game about the students' impressions, how some managed to reach the maximum level of citizen satisfaction, or how hard others found it to finish the game. The teachers have a perhaps even more important role, because they will know what discussions to have after the game is over and where the student needs to be coached." (R1)

"Teachers can guide students during the game and especially at the beginning when they present the instructions. Their role becomes more of a trainer who presents the activity through which we can develop certain skills. Then comes with additions and answers to possible questions. It's a win-win discussion." (R5)

"I think that from the start teachers who use gamification are seen as cooler in the eyes of students. Their role is to keep their attention and the game experience to motivate them in future activities as well. It is already a plus when a teacher uses gamification and students will want to come to his other courses where gamification may not always exist. I think it creates a closer bond in the students' minds." (R8)

"The role of teachers is significant, because they are the ones who set from the beginning the objective for which they use gamification in the course. For example, improving student participation or developing certain skills. They will know best to weigh the ultimate benefits." (R9)

The last question from the interview guide: Q8. How do you see the development of this sector in higher education in the coming years? was designed in order to find out respondents' perceptions regarding the development of gamification industry in higher education sector. Taking into consideration the dynamic of technology development, the higher education sector should adopt modern teaching methods, that include the use of high-edge and engaging technologies, such as the introduction of games in students' learning activities. The respondents consider that the educational sector will see a number of important transformations, since the present generations are tech – savage and addicted to their electronic devices. Most of their understanding about the world realities can be better process through the use of artificial intelligence and other modern technologies. Selection of respondents' answers:

"I think that every self-respecting faculty should introduce gamification to certain subjects. Here, in Madrid, we have a teacher who has such a game in class and the students come in much larger numbers. It's something new that captivates them. They get points every hour, and if they miss, they can't get to the top of the leaderboard, which annoys them. It is a rule and they can only 'play' and advance if they are present in class." (R2)

"Gamification is increasingly present everywhere and should be in education as well. The mobile phone and technology made us to be like this, to want quick results This is the world we live in, and the education system must comply. I'm sure that more teachers will start to embrace this innovative method. It doesn't have to be done every hour, but only for some subjects that are modeled on these games, because not all of them have to be gamified. " (R5)

"We'll definitely see more and more games on different courses because it is a real demand. Students' attention will increase if such applications are introduced in classes." (R6)

"I hope the teachers understand that we are a different generation. We look for results and live every moment according to the principle: Live, life, now! Gamification has this principle in its DNA." (R9)

CONCLUSIONS, RESEARCH'S LIMITS AND FUTURE DIRECTIONS

In conclusion, from the data collected from the interviewees, gamification has a significant impact in higher education, increasing student motivation and engagement during courses. It should be emphasized that students from different international universities responded, and many of the similar opinions further strengthen this belief. Gamification also influences student performance and makes them more excited when using the app.

The main limits of this research are related to the small number of the sample, only 10 respondents were willing to answer the questions from the interview guide, and also the fact that most of them experienced only this game during the BIP program.

Learning games provide context, engagement, challenge. Gamified solutions offer the right combination of engaging gaming elements, such as a sense of progress or immediate feedback, but also visible signs of improvement over time, with some content to motivate learners. Last but not least, gamification is not and should not only be about fun. It should also be about engagement, especially in education sector.

So, in the face of an increasingly competitive higher education market, digital game-based learning and gamification offers an alternative lens for higher education institutions to reassess contemporary pedagogies, as well as an opportunity to redefine the course experience and, more chosen by the student.

We encourage those administrators in the education system to take into consideration the possibilities of introducing and integrating gamification in the learning process (universities). This recommendation is based on the findings of the study. One of the most significant ways in which the quality of services may be considerably improved is via the adoption and implementation of gamification, as demonstrated by prior research that have been published in the literature.

Moreover, as gamification techniques will continue to find a place in classrooms, new and effective strategies will have to be drawn up, and this research can represent a landmark in the implementation of gamification in Romanian universities, implicitly in Bucharest University of Economic Studies and the Faculty of Administration and Public Management.

ACKNOWLEDGEMENT

The present research was carried out as a result of the participation of the members of the Faculty of Administration and Public Management in the TERRAGOV Vilnius Intensive Autumn School Course project. Our faculty was a member of the consortium in this TERRAGOV project (Teaching Institutional Resilience and Prompt Reaction to Crisis: Good Governance Experiences in Europe), which aimed to educate the participants in terms of ways to build institutional resilience through collaboration of both public and private actors in society. This project was funded by the European Union, Erasmus+ Education and Training project fund.

Project website: <https://terrakov.ase.ro/team/>

Materials about the project:

- Lithuania presentation: <https://terrakov.ase.ro/wp-content/uploads/2022/07/Lithuania-Course-invitation.pdf>
- Course Curriculum: <https://terrakov.ase.ro/wp-content/uploads/2023/04/Intellectual-Output-IO4.pdf>

- In-depth Case Study Analysis on Partner Countries in the Field of Good Governance: https://terravgov.ase.ro/wp-content/uploads/2023/04/Terravgov_IO1_National-Case-Studies.pdf

Terravgov Risk Simulation Game (gamification): <https://game.terravgov.ase.ro/>

E-learning platform: <https://terravgov.instructure.com/login/canvas>

REFERENCES

- Ab Rahman, R., Ahmad, S., Hashim, U.R. (2019). A study on gamification for higher education students' engagement towards education 4.0. In Piurietal, V. (Ed.), *Intelligent and Interactive Computing, Lecture Notes in Networks and Systems 67: Proceedings of IIC 2018* (pp. 491-502). Springer Nature Singapore Pte Ltd. https://doi.org/10.1007/978-981-13-6031-2_5
- Bailey, K.D. (1982). *Methods of Social Research*. New York: Free Press.
- Deif, A. (2017). Insights on lean gamification for higher education. *International Journal of Lean Six Sigma*, 8(3), 359-376.
- Deterding, S., Khaled, R., Nacke, L.E., Dixon, D. (2011). Gamification: Toward a definition. In *CHI 2011, Gamification Workshop Proceedings* (Vol. 12, pp. 1-4). Vancouver BC, Canada.
- Dixon, M.D. (2015). Measuring student engagement in the online course: The Online Student Engagement scale (OSE). *Online Learning*, 19(4), n4. DOI: <https://doi.org/10.24059/olj.v19i4.561>
- Elteğani, N., Butgereit, L. (2015, September). Attributes of students' engagement in fundamental programming learning. In *2015 International Conference on Computing, Control, Networking, Electronics and Embedded Systems Engineering (ICCNEEE)*, Khartoum, Sudan, IEEE Publisher. (pp. 101-106). DOI: 10.1109/ICCNEEE.2015.7381438.
- Fisher, D.J., Beedle, J., Rouse, S.E. (2014). Gamification: a study of business teacher educators' knowledge of, attitudes toward, and experiences with the gamification of activities in the classroom. *The Journal of Research in Business Education*, 56(1), 1.
- Google Trends. (2018). *Gamification topic*. Online, available at: https://trends.google.com/trends/explore?q=%2Fm%2F0_v3k67&date=2004-01-01%202018-12-20
- Graham, C.R. (2010). Blended learning models. In *Encyclopedia of Information Science and Technology*, Second Edition (pp. 375-382). IGI Global
- Grant, S. (2013). *Digital badges*. Online, available at: <https://www.hastac.org/collections/digital-badgesguideGamificationEducationDec2013.pdf>
- Handelman, M.M., Briggs, W.L., Sullivan, N., Towler, A. (2005). A measure of college student course engagement. *The Journal of Educational Research*, 98(3), 184-192.
- Hanus, M.D., Fox, J. (2015). Assessing the effects of gamification in the classroom: A longitudinal study on intrinsic motivation, social comparison, satisfaction, effort, and academic performance. *Computers & education*, 80, 152-161.
- Jia, Y., Liu, Y., Yu, X., Volda, S. (2017). Designing leaderboards for gamification: Perceived differences based on user ranking, application domain, and personality traits. In Mark, G., Fussell, S. (Eds.), *CHI '17: Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, 6-11 of May, Denver, Colorado USA, Association for Computing Machinery Publisher, 1949-1960. DOI:10.1145/3025453.3025826
- Laskowski, M., Badurowicz, M. (2014). Gamification in higher education: a case study. In Dermol, V., Smrkolj, M., Đaković, G. (Eds.), *Proceedings of the Management, Knowledge and Learning (MakeLearn) International Conference 2014 "Human Capital without Borders: Knowledge and Learning for Quality of Life"*, 25-27 June 2014, Portorož, Slovenia (Vol. 25, pp. 971-975). DOI:10.13140/2.1.3311.9046
- Precedence Research. (2023). *Gamification Market Size, Share, and Trends 2023 to 2034*. Online, available at: <https://www.precedenceresearch.com/gamification-market>

- Raymer, R. (2011). Gamification: using game mechanics to enhance eLearning. *E-Learn*, 2011(9), 3.
<https://doi.org/10.1145/2025356.2031772>
- Șandor, D. (2013). *Metode și tehnici de cercetare în științele sociale*. Cluj-Napoca: Editura Tritonic.
- Šćepanović, S., Žarić, N., Matijević, T. (2015). Gamification in Higher Education Learning - State of the Art, Challenges and Opportunities. In *The Sixth International Conference on E-Learning (ELearning-2015)*, 24- 25 September 2015, Belgrad, Serbia.
- Zichermann, G., Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. O'Reilly Media, Inc.

APPENDIX

The interview guide included eight questions, as follow:

- Q1: In your opinion, what does gamification mean in the university environment?
- Q2: What do you think are the main effects identified by implementing online gamification in the course?
- Q3: What do you think are the benefits to students of gamifying a course?
- Q4: What do you think are the limitations of online course gamification?
- Q5: How do you think each game element contributes to optimizing student learning?
- Q6: What distinctive elements did you specifically notice about this Terragov Risk Simulation Game?
- Q7: What do you think is the role of the teacher in a gamified course?
- Q8: How do you see the development of this sector in higher education in the coming years?