The Impact of Gamification on the Motivation of Online Students

Marina Grubor[1[0009-0000-0130-5197]], Miloš Stojanović[2[0009-0009-3774-6483]], Pavle Mitić[3[0009-0003-3616-8999]], Anja Veličković[4[0009-0008-8192-469X]]

[1,2,3,4] Belgrade Metropolitan University, Serbia
marina.grubor@metropolitan.ac.rs,
milos.stojanovic@metropolitan.ac.rs,
pavle.mitic@metropolitan.ac.rs,
anja.velickovic@metropolitan.ac.rs

Abstract. It's getting harder and harder for schools of the digital age to keep students interested, motivated and engaged, particularly in an online learning environment. The use of game elements not in the context of games, or gamification, provides innovative ways to increase emotional engagement and interactivity in the classroom. The research provides discussions noting the impact of gamification on motivation of e-learners in real situations and its studies applied at Metropolitan University. It also discusses the neuromarketing principles for enhancing instructional design through cognitive and affective triggers. In particular, the potential barriers for real-world use are discussed: moral questionings, decreased intrinsically motivation to act and dependence on technology. The findings of the study suggest that learners can benefit from gamification as it could potentially contribute to raising the quality of education and to the development of crucial competences in 21st century skills, provided that it is properly designed and supported pedagogically.

Keywords: Gamification, Neuromarketing, Motivation.

1 Introduction

With the development of information, communication and learning technologies there is a new "digital age" in which we are experiencing significant changes in education. This is no superficial assimilation of new tools; it is a profound change in the logic of education itself. Age-old models (teacher as the sage on stage who possessed information that they then imparted to students) are being replaced by shared, interactive and synergistic methods of learning. With the rise of to the internet, artificial intelligence, virtual and augmented reality systems, new possibilities are arising that we can utilize to customize education for each specific student and deliver knowledge in novel ways.

In addition, the digital world has drastically changed communicating -- students can communicate with teachers not only in person but also via multiple digital media channels instantly, so that we can track learning progress better and provide them feedback.

Research Paper
DOI: https://doi.org/10.46793/eLearning2025.253G
Part of ISBN: 978-86-89755-37-4

This transition involves not only technological tools but a shift in educational philosophy and educator and learner mindset. In this context, it is important to know how such tools promote the acquisition of 21st-century skills that are considered fundamental in education, which include creativity, critical thinking, collaboration and digital literacy.

As part of this paper, a research design will be presented, to be conducted at Metropolitan University, with the aim of identifying the effects of gamification on students.

2 Online Education and Gamification

What were perceived to be alternative or experimental ways of learning online in the past, are now mainstream practices in many parts of the world. The widespread use of the internet, advances in reliable digital platforms and the current pandemic of COVID-19 have all contributed to the widespread expansion of online learning. In many universities and colleges, online learning has now become the most common form of teaching, radically transforming understandings of - and approaches to - this mode of education. Oyebode- Fakuade says: There was resistance to quality and effectiveness of online education initially but this has largely turned into broad acceptance and major investment in intuitive digital tools, software and teaching techniques.

Distance learning facilitates the achievement of hybrid models of learning that merge the best in digital and face-to-face forms, thus facilitating easier accommodation to different needs and learning styles [1]. Additionally, access to a broad variety of courses and programs globally has opened up education opportunities for people from remote or marginal communities, thus facilitating international democratization of knowledge. But this model also raises significant concerns regarding quality assurance, accreditation, socialization of students, and long-term impact—all of which necessitate ongoing study and ongoing revision of policies and educational practice. However, this setup brings some real headaches, too—like, who's making sure the quality doesn't tank? Who's actually accrediting this stuff? And don't even get me started on whether students actually get to, you know, make friends or learn how to be humans together. Long-term? Jury's out. Honestly, figuring all this out isn't a one-and-done thing. Schools and researchers pretty much have to tweak and rethink stuff every year just to keep up.

Sure, tech lets more people get their hands on knowledge—it's easier to jump in, learn wherever, and there's less gatekeeping. But let's be real: keeping students pumped about their classes online? That's a whole other beast. Motivation's all over the place. You've got all these things crashing together—kids' own ambitions, stuff happening around them, if their friends are there to hype them up, personal goals, how much freedom they have to run the show. It's not one-size-fits-all, that's for sure.While digital environments offer various benefits, they can also lead to a decline in motivation due to excessive distractions, attention fragmentation, and feelings of isolation [4]. Distance learning often demands a high level of self-discipline, organization, and intrinsic motivation, which many students find challenging—particularly in the absence of adequate support or when they experience a sense of disconnection from the academic community.

In addition, information overload can result in cognitive fatigue, reducing the willingness to engage in learning and encouraging procrastination. Therefore, in contemporary education, it is essential to develop strategies that go beyond mere technical access to knowledge and actively foster and sustain learner motivation and engagement. Creating supportive and stimulating learning environments is crucial for promoting continuous learning and personal development.

3 Online Education and Gamification

The current digital ecosystem has definitely caused an incremental change in the behavioral patterns and the attention spans of the younger gen- erations. From an early on in the their lives, people in Generation Z and Alpha are surrounded by smartphones, the Internet, and social media, which are an integral part life. This influences their cognitive and learning abilities, what they expect, and how they will interact. The attention span of the people has shrunk because of the plethora of things available on the internet, especially on social media apps, such as the Tik Tok app, which focuses on in- instant, short videos and other readily available sources of information.

Younger people's mental constructions are beginning to be more and more in tune with the "scrolling" and "browsing" mentality. This might pose a challenge when attempting to deal with more intricate, advanced, and difficult issues and tasks. The sayings "reading is boring" and "I cannot concentrate" are com- monly heard amongst the younger generation of today, and are not signs of apathy, but rather a proof of the new digital behavior. [5] There is a great need for change in the approach and method of engaging the people. This leads to the other major challenge facing the educators of today. They have to change their strategies.

With each passing day, the integration of gamification strategies has transitioned from an optional consideration to an educational necessity. In the face of a lack of motivation and the large amounts of attention new issues require, focusing on the multitude of gamfication benefits has started to become a top choice. As such, gamfication helps construct active and immersive learning experiences by allowing the students to 'learn' through various games and challenges that, in turn, facilitate the sense of control, achievement, and enjoyment in the learning process.

In this current age, students are used to having things instantly, and gamification strategies can help students stimulate their attention and enhance focused perseverance through tiered levels of achievement. Additionally, as video games have rapidly become the most popular leisure activity, having students informally learn through 'formal' video games in the classroom would be an expected and appropriate revision to current educational practices. In this scenario, the benefits of gamification offer the most educational value, helping reclaim lost attention and motivation for learning.

Gamification is applying game related elements in non game contexts such as education, healthcare, and the workplace. It spans a multitude of activities and strategies aimed at improving interaction and motivation through playful and stimulating activities. These include a game-like aspect awarded points for tasks done, as well as cheers and shoutouts badges or titles for tasks done, levels and challenges in rhythm games, and leaderboards for boss fights in MMORPGs. These activities introduce competitive

motivation, and social interaction while providing tangible and abstract forms of progress tracking.

In schols, even the most boring topics become easier to digest, and an added bonus is the construction of a game layer in the lesson because it's a boring lesson Gamification is possible through almost all forms of technology on the internet and almost all applications, making it useful across a wide span of age groups and levels of education.

In most cases learned is forgotten Gamification in education allows for desEG as well as instantaneous responses and gratification which most case taught with traditional methods of instruction fail to provide.

It is beneficial for students to have individualized assignments that stretch their current level of knowledge to improve engagement and learning. Gamified systems can monitor each learner's progress, pinpoint gaps in understanding, and provide adequately challenging activities that stretch learning, avoiding frustration [7]. Instantaneous feedback is attributed to gamification, and it allows learners to appreciate both their success and failures, thereby accelerating learning and minimizing the chances of learning gaps.

Learning is further enhanced by a badge system that provides additional motivation and helps build self-efficacy, self-confidence, and self-awareness, which is bespoke and usually lost in a conventional educational system.

Today, gamification is recognized as an effective motivational method for pedagogy. This is corroborated by an increasing amount of literature showing beneficial impacts of gamification for student engagement and performance. Aside from widely popular services suchasDuolingo and Khan Academy, more and more schoolsand universities are trying a variety of gamification methods that has new education models emerged therefrom [8]. In a school in Finland, which is well-known for innovative education systems, ‘thematic quests’ are adopted to mimic game play strategies to incorporate teamwork, problem-solving and imagination [9]. High-end universities like MIT and Stanford use virtual simulations that enable students to test out what they’ve learned in a (risk-free) interactive experience, out in the field in high-realism – even intricate environments – helping them understand more deeply, and literally, the subject matter. These case studies prove that gamification is so much more than just plain silly fun – it can be a powerful pedagogical innovation.

Such developments are not the monopoly of elite institutions. More and more educational institutions around the world, and as well in Serbia, are recognizing gamification as a possible learning tool with positive results successfully incorporating it into their curriculums.

The Construction and Design department of Metropolitan University of Belgrade outlines a practical instance of how demestic and market segmentation can customize gamification. “The Meti QR Code Game” of 2025, embraced changing the university’s approach towards marketing to digit arch technologies and outreach wherein these initiatives focused educating the prospects that drove student engagement and diversified learning. Activities like these help draw in the potential students, maintaining the engagement through the marketing strategies gamification and outreach prospects. This showcases that gamification is equally as useful in the promotion and student support promote offered during their studies.

Strategically less capital was spent on marketing and communications to the students as the whole process was structured digitally. This was a campaign that focused on educating students through their participation as disciplined active Kotler. 123 students from the programs of Information Technology, Digital Design and Digital Management, Kotler and students and tourists in this. This case focused on attaining leaded learned gamified in a setting and "jucaped" within a structured period. Students were divided in half in order to receive and enhance their learning comparison at two different scales. It was aimed at capturing traditional and gamified learning methods. It was targeted at assessing real practical mind students of all tiers. The outcomes were astonishing to the students. Users achieved even better outcomes than anticipated: increased retention, active participation, and improved assessment results indicated that gamification does not only motivate learners, it does improve the entire educational paradigm as well.

Self-reported data from the users also corroborated these conclusions as described by the increased reported feelings of belonging and the increased self-direction learners experienced as a result of gamified learning, indicating the potential positive impact of gamification on learners. This is important as it strengthens the rationale for the design and integration of gamification in educational setting.

Researching gamification as a separate area in the field of higher education is important not only because it motivates learners in remote learning settings, but also because it encourages the formulation of new educational methods. At Metropolitan University, students, regardless of their study mode, whether face to face or remote, can access the extensive skill set in programming, design, animation, game audio, story telling, and user experience shaping through the Video Game Development program offered by the Faculty of Information Technologies.

They learn to create storyboards that orient users to virtual spaces, facilitate user interactions, and stimulate movement within the virtual space, often offering conversion to real-world rewards [6]. By doing this, they go beyond being consumers of video games and position themselves as the future creators, equipped with the ability to determine the impact of their knowledge on the world and computer science education of tomorrow, perhaps even letting it be a subject of their specialization. This embodiment of the fundamental ability to cultivate gamification within the academic contexts, even though its potential impact has yet to emerge, perhaps, on shaping tomorrow's world and dealing with the pronouncing issue of attention deficit amongst the digital populace, the impact is real.

4 Neuromarketing and Educational Services

Neuromarketing, a mix science of neuropsychology and marketing, uses knowledge of mental processes to relate productive activity to the way people behave as clients, and in this case, behave as learners. It is useful in education because it focuses on understanding students' emotional and cognitive reactions to their educational and instructional aids and offers suggestions for improved motivational techniques.

The studies conducted in the fieldof neuromarketing emphasize the importance of dopamine—a neurotransmitter of reward and pleasure—in the development of motivation and decision-making faculties. It has been shown that dopamine-inducing neural circuits are activated by reward systems such as gradual fulfillment of goals, small rewards, visualization of progress, and feedback in real time. This line of reasoning sheds light on the phenomenon of "addiction" that students report in relation to particular e-learning platforms that are richly gamified.

In addition, the application of colors, sounds, visual elements, movies, and rapid exchanges in gamified contexts has both sensory and emotional aspects, and this is another focus of neuromarketing. Experiences that are learned in a multisensory, dynamic, and emotionally engaging way are more likely to be retrieved as they are stored in the long memory, and such a condition is the basis of the aims of education.

Empathy, personalization and authenticity, which are emphasized in neuromarketing, are elements that can easily be incorporated in storytelling elements of gamification.

For example, a student who is not just completing tasks but participating in a "mission" or some kind of narrative around the content they are working on becomes far more emotionally and cognitively involved in that work. The human brain has been wired in such a way that it is more likely to remember things, if they are placed within the framework of a story.Tell your students a story – very effective for teaching.

From the perspective of neuromarketing, schools would be able maximize their implementation of gamification in several core dimensions [10]:

Application of Emotions Triggers The inclusion of characters that students can relate to (e.g. heroes or mentors in the platform), the use of positive reinforcement messages, feeling of accomplishment, and the inclusion of success stories would intensify the emotional attachment to the learning material and enhance the overall engagement.

Variable Rewards - As with the reward systems found in slot machines, gamifi-cation can apply unpredictable or variable rewards, which are demonstrated in the neuromarketing literature to cause greater dopaminergic reactions. Such mechanisms however, have to be ethically and pedagogically designed so that manip-ulative practices are not practiced.

Attention- and Memory-Oriented Design - The educational material can be made more visually stimulating and cognitively efficient with the help of the principles of design applied in digital marketing (color contrast, information hierarchy, motion, etc.) and thus, the retention of attention, as well as the encoding of the memory.

Behavioral Analytics and A/B Testing: In the same way that marketers will experiment on which advertise-ment attracts more attention, educational sites can employ comparable approaches to assess which kinds of jobs, images or problems best will inspire and attract students.

The education sector as well as digital marketing are not an exception as both face a similar challenge-cap-turing and keeping attention of the users in a digitally saturated space. Mar-keting deals with this by emotional campaigning, story-telling and psychologi-cal stimulation. In this kind of environment, education should be able to keep up with it, but in the service of the acquisition of knowledge, development of skills, and intellectual growth, it should embrace the same tools.

Consequently, the lines between educational design and online marketing are becoming more and more unclear. The learner is turned into a user, consumer and a client of the educational content. The institutions that identify this paradigm shift and act accordingly, with gamified, strategic and ethically logical solutions, will be enjoying a significant competitive edge in the future of education.

5 Challenges of Implementing Gamification in Education

In spite of all those benefits, there are also many challenges and limitations related to gamification. Among the greatest risks is the fact that extrinsic rewards can be viewed as the main- or the only-motivator, and it can result in the so-called motivational dependency. This can lead to a lower level of intrinsic motivation in students to learn and develop when they are driven by the points, badges, or other extrinsic motivators into learning. When such rewards are taken away or re-scaled, the students might lose their motivation in learning at a very high rate [8]. In addition, competitive factors that are inspiring to others may cause anxiety, frustration, and feelings of failure in others, which affect their confidence and readiness to participate adversely. These issues point to the necessity of the development of well-thought-out gamified systems that would be both inclusive, balanced, and psychologically safe to avoid unintended results.

Also, it is possible to have surface learning and mechanistic task completion. Students who are driven by the primary motive to get rewards might be motivated to look at an advancement model that is characterized as com-petitive, with the objective of gaining a new level or accu-mulating points instead of comprehensively learning the material. This can cause an aspect of memorizing without critical thinking thus compromising on the quality of education in the long run. Complex ideas may be broken down or completely excluded, decreasing the skills of the students to use the knowledge in real-life and professional situations.

Technically, gamification needs significant re-investment of resources such as an effective software program, dedicated staff to create content, and support, which can be costly and difficult to organizational leaders of many educational establishments. A misguided or shallow execution can have just the contrary impact, and the students will be demotivated and dissatisfied.

In addition, the ethical aspect of gamification in education should be brought up. Approaches that have been developed by the video game industry also believe in strong psychological functions of reinforcement and control of behavior - strategies that are practical in getting the attention of the user yet have been extensively denounced due to their addictive properties [3]. Using the same principles in the education sector is disturbing because of the danger of manipulating the learners instead of teaching them to be independent, responsible learners. This brings up some fundamental concerns: How can we manage motivation and ethical responsibility? What can be done to guarantee that gamification does not violate student autonomy and well-being?

There is therefore a necessity to come up with pedagogical methods that uphold human dignity and enable learners instead of viewing them as passive consumers of a system.

Having all these facts in mind, the concept of gamification should be introduced with utmost care, considering the increasing cases of digital addiction, attention disorders, and decreasing mental resilience in young people. The amplified consumption of digital gadgets and social media has already started to impact the mental health of young people using it, causing anxiety, depression, poor focus, and poor socialization. Otherwise, gamification might enhance these concerns even more, especially when it is not well-designed and applied with pedagogical consideration.

In that way, educational institutions should create the set of clear standards and guidelines and observe the psychological impact of gamified systems and offer specific sup-support to students with difficulties in digital learning. The final objective ought to be the establishment of a safe and conducive ecosystem that encourages healthy technology usage and holistic learning growth of students.

However, gamification can be one of the main pillars of contemporary schooling as long as it is planned out and is ethical. The education system of today is in a dire need of a solution: how to keep the mind of stu-dents concentrated in the world of digital distractions like Tik Tok, Instagram, playing some mobile games, and scrolling infinity [7]. In this respect, learning materials should be presented in a manner that is captivating, interactive and connective to the youthful learners.

Combining educational objectives with the presentation formats and mechanisms that students are already accustomed to and like not only increase engagement, but also retention, comprehension, and use of the knowledge. Gamification developed well will foster the creation of key 21 st -century skills, such as teamwork, problem-solving, creativity, and digital literacy skills, which will be critical to the later personal and professional achievements of students.

6 Research methodology outline

The key aspect of the research problem is that online learning presupposes the high degree of self-motivation and engagement which may be a challenge to many students. Despite the fact that most universities are using different digital platforms and strategies to de-deliver distance learning, systems that may improve motivation and the consistent involvement of the students in the learning task are usually not new. It has been identified that gamifica-tion, i.e. the implementation of elements of games within learning (leaderboards, badges, points, rewards, challenges) may be considered as the potential means of enhancing student motivation and engagement. Nonetheless, practically, it is not clear to what degree these factors actually impact the motivation of online students at the Metropolitan University Belgrade and what types of gamification impact the most.

The primary research question is as follows: how is the use of gamification components related to the motivational improvement and the engagement of online students in Metropolitan University?

Moreover, the issue is also manifested in the fact that a systematic analysis and evaluation of gamification in online teaching is not carried out. Due to this reason, it is needed to determine:

- Which gamification elements have the greatest impact on motivation;
- Whether gamification increases engagement in completing tasks and attending lectures;
- What potential challenges and limitations arise in the implementation of gamification in online education.

The topic of the study is the role of gamification in motivating online students in Metropolitan University Belgrade. The study relies on the experience of students who are enrolled in online education and with the intention of establishing the factors that lead to greater motivation, engagement, and learning performance.

The study is confined to online students of Metropolitan University Belgrade that will provide an opportunity to conduct a specific analysis and implement the findings into the institutional framework.

The limitations to be considered are as follows:

- The research focuses exclusively on online students of Metropolitan University Belgrade, meaning that the findings and recommendations primarily apply to this population and the institution's educational practices.
- The sample includes only students who are willing to participate in the survey, which may limit representativeness and the breadth of insights.
- The focus is on perception and subjective experience of motivation rather than on the objective measurement of academic performance.
- The research does not include traditional on-campus students or international students, which narrows the scope of applicability.
- The timeframe of the research refers to the current period of online studies and does not account for long-term effects of gamification.

Based on these restrictiveness, the research results will be interpreted on the predetermined sample and setting of online research, and the intention to make practical recommendations on how the motivation and engagement of the students can be improved through the application of gamification.

The scientific objectives are concerned with the theoretical contribution and deeper comprehension of effect of gamification of educational process in a digital environment, including:

- Analyzing contemporary theoretical approaches to gamification and their role in online education.
- Examining the relationship between gamification elements (badges, points, leaderboards, challenges) and student motivation.
- Determining the role of gamification in strengthening student motivation.
- Testing the proposed hypotheses through empirical analysis of survey data collected from online students.

The practical objectives focus on improving online teaching at Metropolitan University Belgrade through the implementation of gamification elements. They include:

- Identifying the most effective gamification elements for stimulating student engagement.

- Analyzing the influence of gamification on participation in activities, regular class attendance, and task completion.

•Recognizing differences in gamification effects among various student groups (e.g., by year of study, gender, or previous educational experience).

•Formulating practical recommendations for the introduction and optimization of gamification elements in online teaching with the aim of increasing student motivation and academic success.

The hypothesis to be tested is as follows:

The introduction and application of gamification elements in online teaching contribute to increased student motivation and engagement, resulting in improved academic outcomes and higher levels of student satisfaction.

The research method in this work is quantitative, as it is based on the application of a sur-vey questionnaire to receive credible information about the perception and influence of gamification on the motivation of online students.

The main tool of the research is a survey of online students of Metro-politan University Belgrade. The reason why this method was chosen is because it will allow gathering of standardized information with a greater number of respondents thus making it easier to process and analyze the data in a statistical manner.

The questionnaire survey will be taken through an online tool (Google Forms), which will give students easy and fast access to the questionnaire. The questionnaire will remain operational within a period of two weeks, and the link will be sent to the students via the institutional e-mail and the internal communication channels of the University.

Online students of Metropolitan Uni-versity Belgrade with undergraduate and master studies accessing the eLearning platform comprise the target population of the research. The sample is convenience-based (available sample) because only those students that are willing to fill out the survey will be chosen to participate in the survey.

A total of 120 to 150 students will be enrolled in the study and this would make up a large enough sample to make descriptive and statistical analysis. Particular focus is given to the heterogeneity of the sample (gender, age, pro-gram of study, and year of study) to be able to offer more representative results on the motivation and perceptions of gamification among the students.

Table 1. Tabular Overview of the Research Project

Research Phase	**Objective / Activity**	**Instrument / Method**	**Sample / Population**	**Expected Outcome / Data**
1. Problem Definition and Goal Setting	Identify challenges in digital campaigns and online student motivation	Literature review, consultation with mentor	–	Clearly defined research problem, objectives, and hypotheses
2. Hypothesis Formulation	Examine the impact of gamification on student	Formulation of main and auxiliary hypotheses	–	Hypotheses prepared for testing through survey

	motivation and engagement			
3. Method and Instrument Selection	Choose an appropriate method for data collection	Quantitative survey (online questionnaire)	Online students of Metropolitan University Belgrade	Instrument for collecting quantitative and qualitative data
4. Instrument Construction	Design a questionnaire tailored to the target group	Questionnaire with closed and open-ended questions, Likert scale	Online students (150–200)	Data on motivation, perception of digital channels, and attitudes toward gamification
5. Data Collection	Conduct the survey and collect data	Google Forms, distribution via e-mail and student groups	Online students	Dataset prepared for analysis (quantitative and qualitative)
6. Data Analysis	Process and interpret results	Statistical analysis (descriptive statistics, correlations), open-ended question analysis	Survey data	Identified trends, correlation between gamification and motivation
7. Recommendation Formulation	Provide recommendations for improving digital campaigns and gamification	Synthesis of results and conclusions	–	Recommendations for digital marketing strategy and student engagement

Source: Authors

To summarize the attitudes and characteristics of the sample, the analysis of the survey results will be carried out by making use of descriptive statistics (frequencies, percent-ages, arithmetic mean, standard deviation). Inferential methods of statistical analysis will be utilized in the context of hypothesis testing, i.e., t-test, ANOVA, and the 2-test, etc. based on the data type. The correlation analysis will allow studying the connection between the degree of using the gamification elements and student motivation.

Thematic coding method will be used in the analysis of the responses to the open-ended questions, and the primary objective will be to determine the main perceptions, experiences, and recommendations of stu-dents as regards to gamification. The analysis

will be used to inform the findings of this study, which will be quantitative, to understand the impact of gamification in online teaching further.

Table 1 gives the entire course and research process, and the stages of conducting the research are well re-presented in the table. Given that the adequate number of respondents has not been gathered yet to gather relevant findings to perform an analysis, in the frames of the proposed paper we introduce the research plan and methodology to be used, whereas the findings will be subsequently reported in another scientific article.

7 Conclusion

To sum everything mentioned above up, gamification is a good strategic reply to the issues of modern education, although this reply should be well-designed, ethically based, and pedagogical. It does not have to be implemented in a superficial or hasty manner but must be informed by the scientific evidence, theoretical ideas about education, and the real needs of the learners. Gamification can be a potent instrument of motivating, engaging, and achieving better academic performance- however, only when it is incorporated as a component of larger, purposeful educational plan that is also conscious of integrity of learners and their holistic development.

In the future, research and practice will play a vital role in streamlining the gamification practices and models, which will allow developing more dynamic and inclusive educational system, capable of addressing the new needs of the digital era.

Gamification in education is not an innovation but a necessity anymore, as attention, motivation, and engagement are considered to be one of the primary concerns of the educators and institutions in a world. The overlap of the know-how of digital marketing, neuromarketing, and the contemporary pedagogy helps to re-discover the enormous opportunities of the creation of the educational experience which is not only efficient and effective, but also emotionally soothing and sustainably beneficial.

The trick is to find the necessary balance between stimulation and substance, entertainment and knowledge, dopamine and discipline.

When educational systems are able to identify and appropriately practise this balance they will produce new breeds of learners; not only those who are well-informed, but also those who are incredibly motivated, critically engaged and empowered to create, question and transform the surrounding world.

The research, whose design is presented in this paper, will provide a comprehensive overview of the effects of gamification on online students at Metropolitan University, while the presentation of the results will offer an opportunity for further improvements in this field.

Disclosure of Interests. The author has no competing interests to declare that are relevant to the content of this article.

References

1. Cheong, C., Filippou, J., Cheong, F.: Towards the gamification of learning: Investigating student perceptions of game elements. Journal of Information Systems Education 25(3), 233–244 (2014)
2. Koivisto, J., Hamari, J.: The rise of motivational information systems: A review of gamification research. International Journal of Information Management 45, 191–210 (2019)
3. Landers, R.N., Landers, A.K.: An empirical test of the theory of gamified learning: The effect of leaderboards on time-on-task and academic performance. Simulation & Gaming 50(3), 235–260 (2019)
4. Liu, D., Santhanam, R., Webster, J.: Toward meaningful engagement: A framework for design and research of gamification. MIS Quarterly 41(4), 1011–1034 (2017)
5. Mekler, E.D., Brühlmann, F., Opwis, K., Tuch, A.N.: Do points, badges, and leaderboards harm intrinsic motivation? An empirical analysis of common gamification elements. In: CHI '17 Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems, pp. 113–122. ACM, Denver (2017)
6. Morschheuser, B., Werder, K., Hamari, J., Abe, J.: How to design gamification? A method for engineering gamified software. Information and Software Technology 95, 219–237 (2017)
7. Sailer, M., Homner, L.: The gamification of learning: A meta-analysis. Educational Psychology Review 32(1), 77–112 (2020)
8. Sailer, M., Hense, J., Mandl, H.: Gamification and learning: A review of empirical studies on game elements in learning environments. Educational Psychology Review 33(2), 549–578 (2021)
9. Sardi, L., Idri, A., Fernández-Alemán, J.L.: A systematic review of gamification in e-Health. Journal of Biomedical Informatics 71, 31–48 (2017)
10. Xu, B., Chen, N.-S.: The moderating effects of gamification and learning style on student engagement. Journal of Educational Computing Research 57(8), 1901–1921 (2019)