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THE ROLE OF GAMIFICATION IN LANGUAGE LEARNING IN HIGHER EDUCATION

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Abstract

In the recent years, gamification has become an increasingly popular way to improve student engagement and motivation in the classroom. Nevertheless, when it comes to language learning, gamification is still only being introduced both to the teachers and students, which is why there is a lack of research on the benefits gamification brings to the acquisition of English as a Foreign Language (EFL). Therefore, through a systematic overview of the existing academic literature, this paper aims to research the benefits offered by the gamified learning approach in the world of language learning. Literature searches were conducted in the Scopus database, which was chosen due to the fact that it indexes all other potentially relevant databases, such as ACM, IEEE, Springer, DBLP Computer Science Bibliography, and the AIS Electronic Library. Using only one comprehensive database instead of conducting searches in various repositories was preferred in order to increase the rigor and clarity of data gathering. Since the research field is still a new one, it was deemed necessary to analyze the ways in which researchers approach the subject. Hence, emphasis was put on empirical papers and the underpinning theoretical frameworks, methodologies, implemented tools and educational levels analyzed in them. Finally, the paper comes to the conclusion that gamification brings invaluable advantages to language learning courses in higher education, but there is a strong need to dwell deeper into the world of gamification and language acquisition in higher education. The existing research serves as a guideline for carrying out a new, case-study-based approach on students enrolled in a language course at a university level.

Keywords: game-based learning, gamification, education, language learning, literature review.

1 INTRODUCTION

With the development of the information and communications technology, education has undergone major changes. Contemporary education is a specific process in which the roles of teachers and students have completely changed. The teacher's role is no longer fundamental to the educational process, but s/he rather becomes a mediator between the student and the teaching content, while the students are no longer passive observers but the main bearers of all activities [1]. As it is the case with all other spheres of human development, technological advances have also slowly but steadily crept into the world of teaching, where they now play an important role. Due to the persistent falling levels of student interest and engagement during the face-to-face lectures [2] and failure in classes [3], today many teachers have decided to make the most of the opportunity offered by technology by combining various online tools with the traditional classroom methods. Their chosen approach is the one of blended learning. In blended learning, while the teacher is still present during classes, face-to-face classroom practices are combined with computer-mediated activities regarding the content and delivery of the learning experience [4]. However, some teachers have decided to take a step further by introducing play-based learning activities to their teaching process with the help of technology [5]. The entertaining aspect of play cannot be disputed, but it should be highlighted that, as it was already deduced and stated many decades ago, play is a crucial element in one's cognitive development, all the way from birth through to adulthood [6]. Governed by the idea of a better cognitive development and battling the falling levels of student engagement, teachers who chose to incorporate play in the teaching process initiated the emergence of a very unique concept of game-based learning, i.e. learning through gamification. Gamification refers to the use of game elements and game design techniques in a non-game context, and it is used in various contexts for various purposes [7]. One of the contexts in which gamification can be of great use pertains to the acquisition of a foreign language, where game elements could help increase the intrinsic motivation of students to participate in language learning games. A special sub-area of teaching English as a Foreign Language (EFL) belongs to teaching English for Specific Purposes (ESP). Namely, ESP courses are usually very fast-paced and goal-oriented, because their instruction is based on the specific needs of students [8],

which can often make the learning process feel quite grueling and monotonous. That is precisely where gamification can play a crucial role by enriching the teaching materials, i.e. making them more interesting for the students, and it can hence facilitate the students' absorption of the language that will serve them later on in their professional life. However, in the world of ESP, gamification is only being introduced both to students and teachers alike, which is why this paper aims to provide a comprehensive review of the existing research on gamification in ESP, hoping to provide ESP students, teachers and researchers with valuable insight into the already acquired knowledge and to ignite a fire in them which will lead to future, invaluable discoveries.

2 METHODOLOGY

Due to the fact that the role of gamification in language learning is still a new field of research, it is necessary to analyze the ways in which the subject has been approached so far. Therefore, the paper employs a systematic overview of the existing academic literature, with the aim of analyzing the already researched benefits and deducing which potentials have still not been analyzed thoroughly enough. Literature searches were conducted in the Scopus database, which was chosen due to the fact that it indexes all other potentially relevant databases, such as ACM, IEEE, Springer, DBLP Computer Science Bibliography and the AIS Electronic Library. Using only one comprehensive database instead of conducting searches in various repositories was preferred in order to increase the rigor and clarity of data gathering.

The search for literature in the Scopus database was conducted by using the following search query: TITLE-ABS-KEY (gamif*) AND TITLE-ABS-KEY ("language learning"). It was limited to include conference papers, articles, articles in press, reviews and book chapters in order to exclude non-academic publications. The search query was limited to publication metadata (i.e. title, abstract and keywords) as it was considered that the inclusion of a term derived from the root gamif*, as well as of the additional phrase "language learning", would in the metadata indicate the relevance of a paper for the review. The literature search was conducted in 11/2019 and resulted in 75 hits. After the initial literature search, the following steps were taken:

- 1 removal of duplicates and false hits
- 2 search for full versions of papers
- 3 removal of papers not written in English
- 4 finding relevant research papers – papers were considered to be empirical if certain data had been gathered, the data gathering reported and analyses conducted on the data
- 5 analyzing the papers according to the framework and additional data

After the abovementioned steps were taken, the final number of empirical texts that were perceived as eligible for further research came down to 22.

3 RESULTS

As it has already been explained above, 22 publications dating from 2008 to 2019 were studied to highlight the foci of this field of research. However, due to the limited scope of this paper, not all of them could be discussed into more detail, which is why in the continuation of the paper, we highlight the ones with the most coherent framework and which could hence serve as a guideline for carrying out a new, case-study based approach on students enrolled in a Croatian University ESP course. The results of the research can be seen in the following sections.

3.1 Games and gamification – setting the framework

With the development of different digital technologies, people have moved from a passive position to a more participative role and now have the spare time to use their cognitive surplus (spare processing power of the brain) to engage in different online activities [9]. One such activity that has become a main source of using that cognitive surplus is gaming, not only for children or teenagers, but for the entire age spectrum. The latest Entertainment Software Association (ESA) annual report [10] on the essential facts about gaming habits in America states that 60% of Americans play video games on a daily basis, with an average of two gamers in each game-playing US household. According to the report, adult women represent a greater portion of the video game-playing population (33%) than boys under 18 (17%) and the average female video game player is 36, whereas the average male video

game player is 32. According to the research, today, the average gamer is a woman of 36 years who plays casual games on her mobile phone as a favorite leisure activity [10].

Following the popularity of games as a leisure activity among all age groups, organizations across the globe began exploring games as a way to outsource various tasks related to their products and services gathered under the notion of gamification [11].

A seminal paper on the topic of gamification [12] defined gamification as “the use of game design elements in non-game contexts.” In a later paper, authors differentiate between gamification and gameful design, stating that gamification is the application of gameful design: gameful design is defined by the end of affording ludic qualities or gamefulness (the experiential qualities characteristic for gameplay) in non-game contexts. In contrast, gamification describes the means of using game design elements in non-game contexts, typically for the end of gameful design [13]. One of the most commonly used frameworks for game design is the MDA framework consisting of mechanics, dynamics, and aesthetics, and it is used as a tool to help designers, researchers and scholars achieve gamified design as shown in Fig. 1.

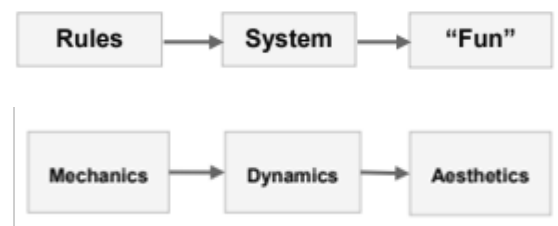


Figure 1. Mechanics-Dynamics-Aesthetics (MDA) framework [14]

The MDA framework formalizes the consumption of games by breaking them into their distinct components: *Rules*, *System* and *Fun* and establishing their design counterparts: Mechanics, Dynamics and Aesthetics.

Mechanics describes the particular components of the game, at the level of data representation and algorithms. Dynamics describes the run-time behavior of the mechanics acting on player inputs and each other's outputs over time. Aesthetics describes the desirable emotional responses evoked in the player, when s/he interacts with the game system [14].

In the recent years, many researchers have decided to dig deeper into the world of gamification and the ESP learning process, but we are still far too much in the dark when it comes to a final and thorough insight into the advantages and disadvantages of employing gamification in ESP classes. Various empirical studies indicate that gamification is an effective approach to increase user motivations [15], long-term engagement [16] and overall enjoyment [17]. Thus, the use of gamification in different settings is drawing an increasing attention, in both the academia and practice [18], giving sufficient motive to dwell even deeper into research.

3.2 Gamification and education – a critical approach

As it has already been stated, this paper employs a critical look at the existing research, with the aim of outlining the benefits offered by the gamified learning approach to ESP teaching and hence unraveling the potential behind gamification in education. The literature review reveals a number of articles contemplating the reasons why gamification should be included in the ESP teaching process.

Zarzycka-Piskorz carried out a research in 2016 in an ESP class taught during one semester at the Pedagogical University in Kraków, with 112 students between the age of 19 and 24 taking part in the research. Their language knowledge was upper-intermediate and they played a game created in Kahoot!, an online game-based learning platform. The gamified activity focused on the grammatical content ranging from irregular verbs forms, question formation, and passive voice through various tense differences, before finishing with reported speech, conditionals and subjunctives [7]. At the end of the semester, students rated the game by assessing the fun element they experienced while playing and how they felt during the game, and they also filled out a questionnaire which focused on their motivation that drove them to take part in the game. At the end of the course, they graded whether they preferred the game or traditional classroom exercises [7]. It should be kept in mind that motivation, which is the driving force behind employing gamification in the educational context, refers to the learner's willingness to exert effort to learn the material and is defined as an internal state that

initiates and maintains goal-directed behavior [19, 20]. As far as the research results are concerned, 68% of students thought the game was fun, whereas 90% stated that they had learnt the intended grammar structure as a result of the game. In addition to that, 80% of students said that they would recommend that way of learning. The final results of the research showed that 70% of students felt motivated to learn grammar after playing Kahoot!, mostly because of the reward waiting for them at the end, the first place in the competition. However, they also stated that they appreciated the possibility of revising, checking and consolidating knowledge which the game allowed them to do. Based on the results of the research, the author came to the conclusion that even though the content may be difficult, students seem to be eager and open to the idea of learning via an online game, which consequently positively influences their intrinsic motivation, which is not usually the case with the traditional face-to-face lectures [7]. The research successfully proved that implementing games in the traditional face-to-face lectures not only breaks monotony, but also significantly influences the intrinsic motivation of students.

In 2018, Głowacki et al. carried out research at an ESP course at the Instrument Building Faculty of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". 43 undergraduate students took part in the research, which was again done with the help of the Kahoot! online gamification tool. The game focused both on lexical (engineering vocabulary) and grammatical (passive voice, conditionals) topics. Upon the completion of the research, the development of lexical and grammatical skills significantly increased as opposed to the situation prior to the use of Kahoot!. The students also had to fill out a questionnaire in which they analyzed the positive and negative aspects of studying with the help of games. The majority of them enjoyed the spirit of the competition, which again highlights the activation of intrinsic motivation. However, some of them stated that they felt nervous during the competition due to the fear of losing. It is also very interesting and important to mention that in this research, the best results were obtained by the students who had rarely demonstrated initiative during the face-to-face lectures and who did not have the highest performance rates [21]. Yet again, a significant motivational impact of gamification is highlighted, along with its role in an active engagement of students in educational activities [21].

In 2019, At the Faculty of Education of Toledo, University of Castilla-La Mancha, Faya Cerqueiro and Martín-Macho Harrison used Socrative, a gamified mobile application designed for classroom, during the English lessons attended by 68 first-year undergraduate students. With the help of the Socrative application, learning activities were designed to grant simultaneous participation of all the students in the classroom in the form of two non-gamified activities (collaborative reading, lecture followed by questions) and one gamified activity (cooperative review game consisting of 35 multiple-choice questions) [22]. Students worked cooperatively in teams of four members with one mobile device per team. Quantitative questionnaires intended to obtain student feedback were filled out by students upon their completion of the activities. The results showed that the use of a gamified mobile application undoubtedly attracts students' curiosity and attention [22]. All three activities were met with great acceptance and they were perceived as more enjoyable than they would have been if implemented without the application. It is important to note that gamification elements did not seem to affect content prioritization, but that they rather impacted other aspects such as motivation [22]. Furthermore, the students used the application the longest during the game-based session, which implies that they perceived the activity as more enjoyable when it was gamified than when it was not. The main disadvantage of the application that should be highlighted was the time restriction set up by the teachers, which is where teachers in general should be careful, because it might affect not only the students' performance, but also their perceived satisfaction with the teaching approach and hence their learning outcomes [22]. Based on their research, the authors have come to the conclusion that the gamified approach increases students' motivation, interactivity, participation, satisfaction, interaction, performance and engagement [22].

At the Faculty of Liberal Arts and Science, Kasetsart University in Thailand, Banditvilai carried out in 2016 a case study of blended learning to enhance students' language skills, highlighting the learning outcomes in an ESP class, where e-learning strategies are used together with the classical face-to-face teaching methods. 60 second year undergraduate students participating in the Communicative Business English class took part in the research. The students were present during the face-to-face lectures, but they also engaged in slightly gamified e-learning activities such as multiples choices, matching and short answer questions created by their teacher. At the end of the course, student feedback was obtained via a questionnaire and semi-structured interviews. The obtained data showed that the students enjoyed using the e-learning platform because they felt more motivated and involved in the learning process [23]. It is important to note that learner autonomy is an important feature of the learning process, and motivation goes hand in hand with it.

In 2017, Sevilla-Pavón and Haba-Osca from the University of Valencia created a telecollaboration project which was carried out in a Business English course among the students from their university and the students from the Northern Arizona University in the United States. They wanted to give their students the opportunity to directly interact with the native speakers of their target language and hence develop their language skills and further strengthen them by bridging certain cultural gaps which always emerge when studying a foreign language and the cultural context it operates in. They chose a task-based method and enriched it with gamification through the use of points, performance graphs, quests, avatars, a reward system, peer assessment and the use of the social media [24]. Students from Spain and the USA had to work together to complete the gamified tasks and then it was expected of them to exchange feedback and assessment. 50 students, 21 from Spain and 29 from the USA, took part in the research. They were mixed into various groups with at least two native speakers in each group. Students were given many tasks through which they got to know each other and exchange experiences about their cultures, and each task employed gamified elements. Upon the completion of the course, students were given a questionnaire with 60 open- and close-ended questions, meaning that both quantitative and qualitative data were obtained. The questionnaire was anonymous. Student feedback was positive, as they felt the gamified approach of the project enhanced their motivation and interactivity. They also stated that they became more willing to face the learning challenges in the gamified environment. The project also benefited their intercultural awareness and some students stated that they perceived the project as “learning from real life and not books” [24].

At the Bandırma Onyedi Eylül University, Asmalı carried out in 2018 a research of the use of the Kahoot! application in an ESP class. 43 students who participated were enrolled in the Department of Tourism and Hospitality Services. The learning materials they used during their face-to-face lectures were gamified in the form of short videos and guided role play activities. After the course came to an end, student feedback was obtained. It was deduced that the students’ performance improved after using Kahoot! in their learning process [25]. It was yet again proven that the use of gamification in ESP learning awakens student motivation and enhances the level of student engagement

4 CONCLUSIONS

In the ever-expanding competitive market, in order to become an invaluable asset in the chosen profession, students must, apart from the knowledge they acquire in their profession during their university days, render their knowledge of the English language, or to be more precise, of the English used for Specific Purposes [26]. Since the number of ESP courses has vastly increased due to socio-economic reasons and the ever-expanding needs of the global market, it is of no wonder that technology has become of the essence for the teachers who realize its advantages. Therefore, a number of other researchers, together with the ones mentioned above, carried out case studies with the desire to better understand and consequently better use the benefits of gamification in their classrooms. When analyzing the existing research, one common denominator arises – the rise of motivation, which suggests that teachers are on a good path to rectify the current situation of student melancholy and disengagement from the learning process.

Moreover, it should not be disregarded that the teachers who embrace ICT and the advantages gamification offers to them and their students will find themselves in a better position than the teachers who insist on the traditional approach of face-to-face lectures.

REFERENCES

- [1] K. Pavlina, T. Ivanjko, L. Gorički, “ICT enriched teaching vs. traditional teaching in primary school,” in *11th annual International Conference of Education, Research and Innovation*, 2018. ICERI2018. pp. 175-179. 2018.
- [2] S. Battin-Pearson, M.D. Newcomb, R.D. Abbott, K.G. Hill, R.F. Catalano, J.D. Hawkins, “Predictors of early high school dropout: A test of five theories,” *Journal of Educational Psychology*, vol. 92, pp. 568-582, 2000.
- [3] J.D. Finn, “Withdrawing from school,” *Review of Educational Research*, vol. 59, no. 2, pp. 117-142, 1989.

- [4] A.M.A. Bakeer, "Students' Attitudes towards Implementing Blended Learning in Teaching English in Higher Education Institutions: A Case of Al-Quds Open University," *International Journal of Humanities and Social Science*, vol. 8, no. 6, pp. 131-139, 2018.
- [5] D. Tan Ai Lin; M. Ganapathy, Malini; M.K. Mehar Singh, "Kahoot! It: Gamification in Higher Education," *Pertanika Journal of Social Science and Humanities*, vol. 26, no. 1, pp. 565-582, 2018.
- [6] J. Piaget, *Play, dreams, and imitation in childhood*. New York: W.W. Norton & Co, 1962.
- [7] E. Zarzycka-Piskorz, "Kahoot! It or Not? Can Games Be Motivating in Learning Grammar?," *Teaching English with Technology*, vol. 16, no. 3, pp. 17-36, 2016.
- [8] P.C. Robinson, *ESP today: a practitioner's guide*. New York: Prentice Hall, 1991.
- [9] C. Shirky, *Cognitive surplus: creativity and generosity in a connected age*. London: Penguin, 2010.
- [10] ESA, Essential facts about the computer and video game industry, Accessed 30 November 2019. Retrieved from <https://www.theesa.com/esa-research/2019-essential-facts-about-the-computer-and-video-game-industry/>
- [11] K. Huotari, J. Hamari, "A definition for gamification: anchoring gamification in the service marketing literature," *Electronic Markets*, vol. 27, no. 1, pp. 21-31, 2017.
- [12] S. Deterding, D. Dixon, R. Khaled, L. Nacke, "From game design elements to gamefulness: defining 'gamification'," in *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*. New York: ACM, pp. 9-15, 2011.
- [13] S. Deterding, "The lens of intrinsic skill atoms: a method for gameful design," *Human-Computer Interaction*, vol. 30, no. 3-4, pp. 294-335, 2015.
- [14] R. Hunnicke, M. LeBlanc, M., R. Zubek, "MDA: a formal approach to game design and game research," in *Proceedings of the AAAI Workshop on Challenges in Game AI*, 2004. vol. 4, no. 1, pp. 1722-1726, 2004.
- [15] R. Tinati, M. Luczak-Roesch, E. Simperl, W. Hall, "An investigation of player motivations in Eyewire, a gamified citizen science project," *Computers in Human Behavior*, vol. 73, pp. 527-540, 2017.
- [16] N.R. Prestopnik, J. Tang, "Points, stories, worlds, and diegesis: comparing player experiences in two citizen science games," *Computers in Human Behavior*, vol. 52, pp. 492-506, 2015.
- [17] T. Ivanjko, "Crowdsourcing image descriptions using gamification: a comparison between game-generated labels and professional descriptors," In *2019 42nd International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)*, IEEE, pp. 537-541, 2019.
- [18] J. Hamari, J. Koivisto, H. Sarsa, "Does gamification work? - a literature review of empirical studies on gamification," in *47th Hawaii international conference on system sciences (HICSS)*, 2014. Washington: IEEE Computer Society, pp. 3025-3034, 2014.
- [19] R.E. Mayer, *Computer Games for Learning: An Evidence-Based Approach*. Cambridge, MA: MIT Press, 2014.
- [20] R.E. Mayer, *Applying the Science of Learning*. Boston: Pearson, 2011.
- [21] J. Głowacki, Y. Kriukova, N. Avshenyuk, "Gamification in Higher Education: Experience of Poland and Ukraine," *Advanced Education*, vol. 10, pp. 105-110, 2018.
- [22] F. Faya Cerqueiro, A. Martín-Macho Harrison, "Socratic in Higher Education: Game vs. Other Uses," *Multimodal Technologies and Interaction*, vol. 49, no. 3, pp. 1-19, 2019.
- [23] C. Banditvilai, "Enhancing Students' Language Skills through Blended Learning," *The Electronic Journal of e-Learning*, vol. 14, no. 3, pp. 220-229, 2016.
- [24] A. Sevilla-Pavón; J. Haba-Osca, "Learning from real life and not books: A gamified approach to Business English task design in transatlantic telecollaboration," *Ibérica* 33, vol. 33, pp. 235-260, 2017.

- [25] M. Asmali, "Integrating Technology into ESP Classes: Use of Student Response System in English for Specific Purposes Instruction," *Teaching English with Technology*, vol. 18, no. 3, pp. 86-104, 2018.
- [26] T. Ivanjko, I. Grubješić, "Implementation of LMS Activities in the Adoption of ESP in Higher Education," in *2019 42nd International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)*, IEEE, pp. 617-621, 2019.