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GAMIFICATION IN LANGUAGE TEACHING AT THE UNIVERSITY LEVEL: LEARNER PROFILES AND ATTITUDES

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Abstract. In instructional settings, the term gamification refers to the use of game-based elements to increase learner motivation and involvement. This study aimed to get insight into how adult learners of English perceive gamified activities incorporated into their English language course, and whether player types as defined by Bartle (1996) - explorers, achievers, socializers, and killers – affect student attitudes to specific gamification elements (rules, time limit, challenges, leaderboard, awards, bonuses, and badges). The results showed a high level of student support (97%) for gamified language instruction. A significant difference was observed between player types regarding their attitudes to certain gamification elements and player types. Challenges were highly rated by the explorers ($p = 0.006$); leaderboards by the killers ($p = 0.049$), and time limit by the achievers ($p = 0.009$). The conclusion is that player types and preferences should be surveyed and considered when designing gamified learning activities.

Keywords: gamification; gamification elements; player types; English language teaching; learner attitudes

Background

According to Deterding, Dixon, Khaled, and Nacke (2011), the term gamification has gained wide acceptance in the academic discourse since 2010. The authors define gamification as 'the use of game design elements in non-game contexts' (p.10). In the recent decade, gamification has been incorporated into the curricula of various educational settings (Baptista & Oliveira 2018; Dicheva, Dichev, Agre & Angelova 2015; Kapp 2012; Schonfeld 2010; Werbach & Hunter 2015). The main purpose of gamification is to stimulate learners' motivation and engagement through the use of game elements including 'action language, assessment, conflict/challenge, control, environment, game fiction, human interaction, immersion, and rules/goals' (Landers 2014, 757). Examples of digital tools used to gamify language learning include Kahoot, Babbel, WordBricks, Duolingo, and others.

In his seminal book, Kapp (2012) asserts that the gamification of learning and instruction should be based on solid methodological principles and not on haphazardly put-together game elements. The most common gamification elements and their purpose in lesson design

have been described in several related articles and books (Antin & Churchill 2011; Deterding et al. 2011; Kapp 2012; Landers, Armstrong & Collmus 2017). At the core of gamification are specific *rules* that govern and direct the learners in the process of fulfilling a game-based task. Gamified activities often incorporate a *challenge* that involves critical thinking, researching, discovering, providing answers and solutions. They are structured in *levels*, each defined by specific goals that the players should achieve before they can move to a higher level. *Time limits* control the pace of the game through the different levels to the final goal. *Progress* is an element that is responsible for keeping track of players' advancement and accomplishments. *A leaderboard* is a gamification element that is used to rank the players based on their progress and achievements. The *reward system* includes a variety of forms: *rewards* (certificates or other types of virtual object prizes), *badges* (a distinctive sign for a specific achievement), *bonuses* (additional points towards a grade), and others. *Feedback* involves comments about players' specific actions and performances provided by the teacher and/or peers to facilitate the learning process.

Bartle (1996, 4 – 6) defined four player types based on their behaviors during a game. Although players sometimes shift from one type to another, they normally maintain a primary style.

Explorers enjoy discovering internal patterns and understanding obscure features.

Killers take advantage of the tools provided by the game to attack and remove opponents who stand on their way to victory.

Socializers make full use of the communicative affordances of the game to interact with their fellow players.

Achievers are mostly interested in accomplishing the goals of each level and proceeding to the next, gathering rewards and topping the leaderboard.

Related Research

Research about gamification in second language education is relatively recent. According to a systematic review by Dehghanzadeh, Fardanesh, Hatami, Talaee & Noroozi (2019), gamified English language teaching is being used at all levels of education, but most frequently in high school. Studies about gamified language teaching in higher education and high school have found a positive effect on the learners' motivation, engagement, and satisfaction as well as on their vocabulary knowledge (Abrams & Walsh 2015; Bustillo, Rivera, Guzman & Acosta 2017; Hasegawa, Koshino & Ban 2015; Huang, Hew & Lo 2018; Mchucha, Ismaeil & Tibok 2017; Medina & Hurtado 2017; Won & Kim 2018; Zarzycka-Piskorz 2016).

A beneficial effect on learners' listening, speaking, reading, and writing skills has been observed by Won and Kim (2018) in a content language teaching course in higher education. Gains in grammatical competence have also been reported (Purgina, Mozgovoy & Blake 2019; Zarzycka-Piskorz 2016; Zou, Li & Li 2018). However, empirical evidence about learners' attitudes to specific gamification elements and their effectiveness for attaining particular language learning objectives is absent from this framework of research (Dehghanzadeh et al. 2019). Moreover, none of the existing studies have examined how different gamification elements are viewed by different players. Researching this issue is important because gamification elements have specific goals that may or may not correspond to certain types of players. The results will have implications for the organization and execution of gamified language teaching.

Methodology

Purpose

This study aimed to get insight into how adult learners of English perceive the effectiveness of game-based activities incorporated in their regular English language course, and whether the player type they associate with affects their attitudes to specific gamification elements.

Participants

The study was based on data from 93 students majoring in Software technology and design and Software Engineering in the Faculty of Mathematics and Informatics at the University of Plovdiv "Paisii Hilendarski", Bulgaria. The students' age ranged between 17 and 29 years, mean age of 19 years (SD ±1.25 years). The students were enrolled in a required English language course. The prevalent English language proficiency of the participants was assessed at level B2 (range B1 to C1) according to the Common European Framework of Reference. The students' academic majors included Software technology and design, Informatics, and Software engineering.

Gamification of the English language course

The English language course included 9 units on topics related to technology and virtual environments. Each unit integrated reading, listening, speaking, and writing activities which were built on gamification principles using the virtual environment of Google cloud and Kahoot apps for language learning (https://kahoot.com/). Gamification elements were incorporated into the design of the course to stir up students' interest, increase their involvement and interaction, and challenge them to take responsibility for their learning. Teamwork in small groups (4 to 5 students) was an essential part of the organizational structure of each unit. A sample of the gamification elements incorporated in one of the units on the topic of *Artificial*

intelligence is shown in **Fig. 1.**

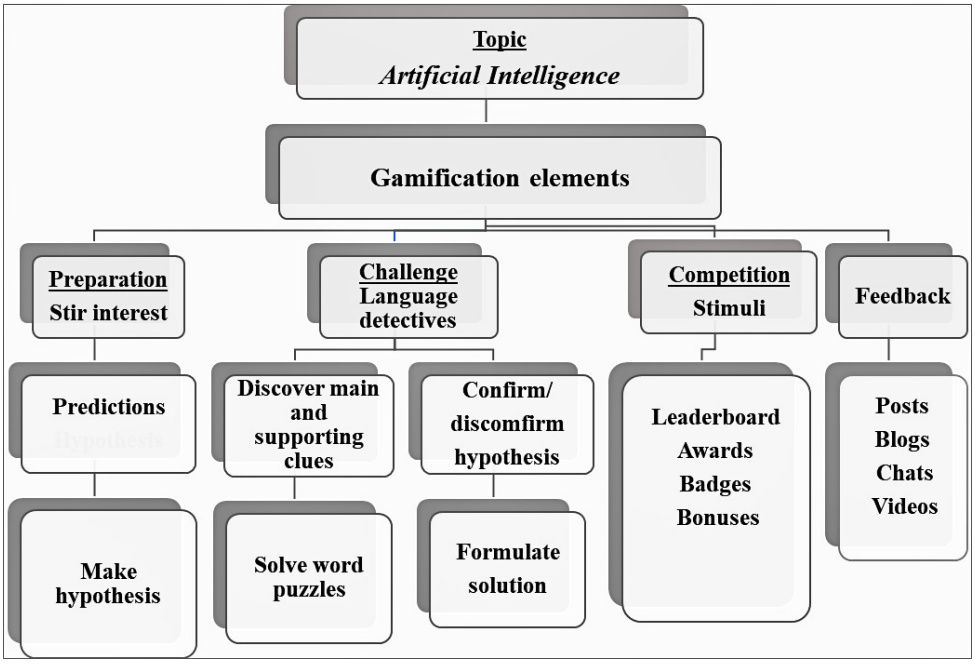

Figure 1. An example of gamification elements incorporated in the unit on *Artificial intelligence* from the English language course taken by the participants in the study

The survey

The survey was delivered online at the end of the trimester after the final grades were officially entered. In the background section, the students provided information about their major, age, gender, preference for single-player or multiplayer games, and the player type they most closely associated with: explorer, killer, socializer, and achiever. The player types were described following the definitions of Bartle (1996, 4-6). The remaining questions elicited students' opinions about the effectiveness of game-based activities in their English course and about specific gamification elements, including game rules, time limit, problem-based tasks, leader-board, awards, bonuses, and badges. The survey questions included multiple-choice, yes-no, and short answers.

Statistical analysis

The effectiveness of gamification and the importance of specific gamification elements were measured on a binary scale (Yes – No). The responses were cross-

tabulated and associations with the roles the students identified with were established through the Chi-square and/or Fisher's exact test. The short answers were examined for keywords and common themes through content analysis. All tests were two-tailed and statistical significance was marked as follows: significant (*) at $p < 0.05$, very significant (**) at $p < 0.01$; and highly significant (***) at $p < 0.001$. The data analysis was performed using the statistical software IBM SPSS version 27 (2020).

Results

Distribution of the participants by player type and preference for multiplayer versus single-player games

The distribution of the students according to the player type they identified with was as follows: 34 (36.50%) explorers, 24 (28%) killers, 21 (22.50%) socializers, and 14 (15%) achievers. The majority of the students (76%, n = 71) expressed a preference for multiplayer games, and a significantly smaller proportion (24%) favored single-player games, $p < 0.001$. The preference for multiplayer games was not significantly associated with the player types, $p = 0.968$ (**Fig. 2**).

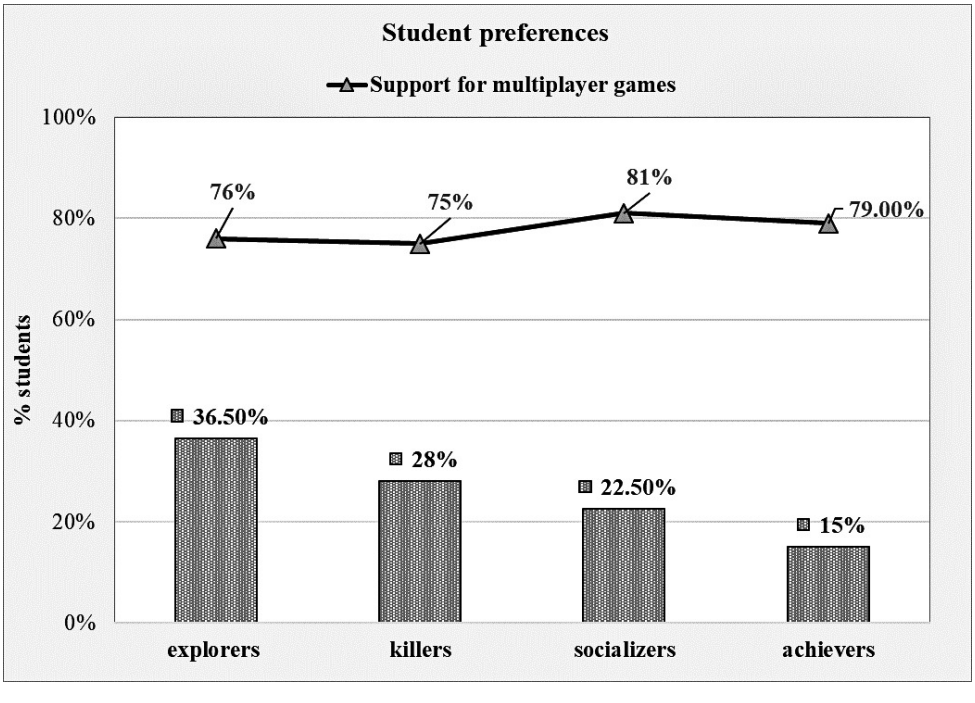

Figure 2. Distribution of the students according to player types and preference for multiplayer versus single-player games

The overall effectiveness of the game-based tasks in the English language course

The game-based tasks incorporated in each unit of the English language course were found beneficial by 97% (n = 90) of the students, and this opinion was stable over and above the player types the students associated with. In their comments, the students described the game-based activities as '*fun*', '*motivating*', '*engaging*', and '*stimulating*'. They found them beneficial for building and expanding their knowledge of English words and grammatical patterns. Many of the students shared the opinion that '*Games help students to make and sustain the effort of learning. Games provide language practice in the various skills – speaking, writing, listening, and reading. They encourage students to interact and communicate*' (The quote was taken from the comment of a 20-year female student, level B2, majoring in Informatics). In other comments, it was mentioned that game-based tasks made learning appear incidental and easy. This opinion is summarized by the response of a 19-year old male student, proficiency level B2, majoring in Software engineering: '*By playing games, the students become part of the game. That makes things a lot more interesting for the students and makes them learn new things without even noticing*.' Only 3 students (3%) did not find game-based activities useful. They shared the opinion that although game-based activities are engaging, they cannot provide a solid knowledge base.

Attitudes to specific aspects of the game-based activities

Rules

The majority of the students (94%) shared the opinion that game-like activities should be governed by specific *rules*. This opinion was dominant irrespective of player types ($p = 0.759$). The participants appreciated the use of clearly stated rules in game-based language tasks. It was noted in their comments that the game controls the players through rules and that without rules the game would be ineffective and chaotic. A student mentioned that through rules, the use of '*violent and vulgar language can be controlled*' [Female, 21-year-old student, Information Technology).

Time limit

Setting a time limit was considered important by 59% (n = 55) of the students; however, this opinion was significantly influenced by the player types ($p = 0.009$). The highest support for *time frame* was among the achievers (82%), followed by the killers (75%), the explorers (50%), and the socializers (38%). The students who favored this principle pointed out that having a time limit made the game more challenging and helped the players stay focused, not lose track, be disciplined and organized. The main opposing argument was that having a time limit puts unnecessary pressure and stress on the players.

Challenges

The inclusion of *challenges* that drive critical thinking and stimulate students to research and solve problems was rated as important by 78% (n=73) of the students. The highest support for this principle was in the group of explorers (94%), followed by the achievers (85%) and the socializers (81%). The students who identified with the profile of killers showed significantly weaker support for this principle as 50% of them did not find it important (p = 0.006). The arguments favoring the inclusion of *challenge*s were that the process of solving problems is '*rewarding*' and '*exciting*', leading to deeper learning and retention. In some comments, it was noted that research skills and critical thinking were important for the present-day workplace. The opposing views pointed out that such tasks take too much time and can sometimes be annoying.

Leaderboard

Having a leaderboard during game-based activities was favored by 70% (n =65) of the students, with a significant variation associated with the player types (p = 0.049). The highest proportion of supporters for a leaderboard was among the killers (96%), followed by the achievers (86%). On the other hand, a smaller proportion of the explorers (57%) and socializers (57%) favored leaderboards. The main arguments in favor of leaderboards were that they provide a basis for comparison with the others, stimulate competition, and drive students and teams to do better in order to get to the top of the leaderboard. The students who had negative attitudes to leaderboards explained that they felt uncomfortable about being '*ranked*', and found it '*demotivating and frustrating'* to see their names on the leaderboard.

Awards, bonus points, and badges

Awards were favored by 83% of the students, with the highest support among the killers (96%), followed by the achievers (86%), the explorers (77%), and the socializers (76%). The differences were not significantly associated with the player types, p = 0.208. *Bonus points* were positively received by 87% of the whole group, with 96% of the killers, 93% of the achievers, 82% of the explorers, and 81% of the socializers. The differences among the player types were not significant, p = 0.303. Badges were the least favored element of games, supported by 59% of the students: 71% killers, 62% socializers, 53% explorers, and 50% achievers (p = 0.485).

Table 1. Students' attitudes to specific aspects of game-based activities

Importance of gamification elements	Total n = 93	Explorers n = 34	Killers n=24	Socializers n = 21	Achievers n = 14	p
Rules	87 (94%)	33 (97%)	22 (92%)	19 (91%)	13 (93%)	0.759
Time frame	55 (59%)	17 (50%)	18 (75%)	8 (38%)	12 (82%)	0.009**
Challenges	73 (78%)	32 (94%)	12 (50%)	17 (81%)	12 (85%)	0.006**

Leader board	65 (70%)	18 (53%)	23 (96%)	12 (57%)	12 (86%)	0.049*
Awards	77 (83%)	26 (77%)	23 (96%)	16 (76%)	12 (86%)	0.208
Bonus points	81 (87%)	28 (82%)	23 (96%)	17 (81%)	13 (93%)	0.303
Badges	55 (59%)	18 (53%)	17 (71%)	13 (62%)	7 (50%)	0.485

*- $p < 0.05$; **- $p < 0.01$

Discussion

The survey of students' preferences revealed that all player types, as defined by Bartle (1996, 4 – 6), were found in the group and that the majority liked multiplayer versus single-player games. Based on the student profiles, it was projected that they would appreciate and benefit from gamified learning and would find it motivating and engaging.

Regardless of player types, the students shared the opinion that the game-based activities sustained their interest and motivated them to interact and communicate with each other in the process of accomplishing the common goal. The majority of the participants found game-based activities an effective way to develop their language skills and vocabulary knowledge.

Only 3 students thought that game-based activities had minor benefits for their learning. The results from the survey support our initial expectation and collaborate related research about the positive effect of gamification on learners' motivation, engagement, and satisfaction (e.g. Abrams & Walsh 2015; Bustillo et al. 2017; Huang et al. 2018; Mchucha 2017; Zarzycka-Piskorz 2016).

The interplay between role profiles and attitudes to gamification and specific gamification elements has not been given due attention by research on gamification in educational settings (at least to the knowledge of the present author). This fact makes the findings of the present study novel and not comparable to previous ones. Overall, our results showed that certain gamification aspects were viewed and rated similarly by the students regardless of player types, whereas other gamification elements showed significant variation in opinions and attitudes among the different types of players. The main tendencies are summarized in **Fig.2.** The students unanimously rated *rules* as important for the game and shared the opinion that without rules the game would have no focus and would get out of control. It was noted in their comments that the rules not only govern the game but also control the use of vulgar and offensive language. The next two highly ranked elements *bonus points* and *awards* represent informal assessment tools (Brown & Abeywickrama, 2010). Irrespective of which player type they associated with, the students considered *bonus points* and *awards* important stimuli. *Badges* were the least liked across the four types of player (**a**). This tendency corroborates the recommendation of Antin & Churchill (2011) about 'a systematic research into the dynamics of badges' and their 'positive and negative' aspects (p. 4).

Three gamification elements, including *challenges*, *leaderboard*, and *time frame* were viewed differently by the different player types (**b, c, and d**). The observed trends and students' comments match Bartle's description and examples of the different roles (1996, pp. 4 – 6). For instance, *challenges* were appreciated the most by the *explorers* who by definition '*like discovering internal patterns and obscure features*' (p. 4) and were the least liked by the killers who are defined as players focused on '*removing the opponent*' (p. 5). The explorers enjoyed doing *problem-based tasks* and found them beneficial not only for their language development but also as a preparation for the workplace. In contrast, problem-solving activities were found tedious and slow by those students who associated with the killer profile (**b**).

The use of a *leaderboard* was another controversial element that was highly valued by the killers and the achievers and received with less enthusiasm by the socializers and the explorers. Whereas the killers and achievers were excited by competitive environments, the explorers and socializers found ranking disturbing and unnecessary (**c**). Situating a game-based activity within a time limit was viewed as important by the majority of the achievers and killers, and found stressful by the explorers and socializers (**d**).

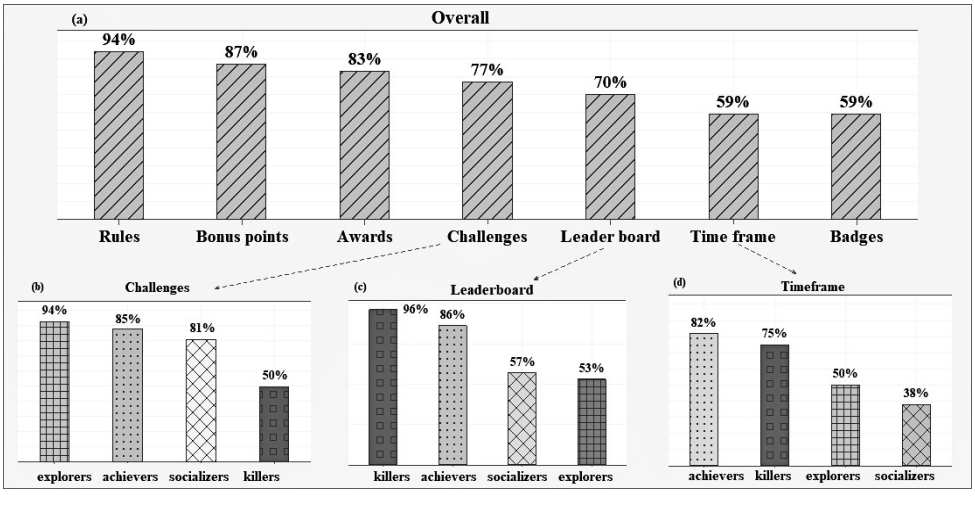

Figure 3. The importance of gamification elements in descending order according to the students' ratings (**a**). Differences in ratings related to player types (**b**, **c,** and **d**)

Considering the absence of research about player types and their attitudes to gamified language tasks and gamification elements, the findings of the present study

are not only novel but also of practical importance for the design and organization of gamified language learning activities. Bartle (1996) has noted that the successful execution of gamified activities requires an appropriate balance between game elements and player types. If students are assigned to groups by their own choice, it is likely that some teams may entirely consist of killers and/or achievers and others of explorers and/or socializers. Drawing from our findings, the following recommendations can be made:

1. At the start of a gamified language course, it is recommended for teachers to gather data about learner profiles by surveying their experiences with computer games and the player types they identify with. The latter should be given with short definitions, illustrated by examples from well-known computer games.

2. The data will be used to form teams in which all player types are included. A completely balanced distribution by player type may not always be possible; however, maximum effort should be made to put together players with different profiles. Our data showed that killers and achievers shared common attitudes versus socializers and explorers whose profiles also overlapped in certain aspects. Based on similar characteristics, in the absence of a sufficient number of killers to place in each team, they could be substituted by achievers and vice versa. The same substitution is possible between socializers and explorers.

3. Once the teams are formed, the teacher should monitor and get continuous feedback on the group dynamics by asking students to keep virtual diaries accessible only to the teacher. Thus internal team conflicts can be brought to the instructor's attention and resolved through counseling or regrouping of the teams.

4. An end-of-semester survey is also recommended to get students' feedback on the different gamification elements, team interactions, and problems. This data can be used for the future development and improvement of gamified teaching activities.

In addition, gamification elements that are not received favorably by the majority of the students can be modified or entirely excluded from the gamified tasks in future administrations of the same course. In the context of the present study, badges were identified as the least liked form of informal assessment and we would consider replacing them with another type of stimulus more appealing to the population of adult university-level learners of English.

Limitations of the study are that the distribution of player types in the studied group of students may differ in other contexts with different learner characteristics. Also, the attitudes to specific gamification elements that were identified in the present sample may vary for other target groups of learners. Therefore, we recommend that each learner group should be surveyed and the data should be used to find the most appropriate approach to gamifying the language learning process. As stated earlier, the main purpose of this study was to gain insight into these issues and bring them to the attention of language educators who use or plan to use gamification in their teaching.

Conclusion

Based on our results, it can be concluded that gamified tasks are well received and highly appreciated by adult language learners at the university level. The use of gamification elements in language-based activities contributes to a competitive environment, governed by the rules of the game. However, this gamified reality is perceived differently by the different players. Some are driven by the goal to top the leaderboard, others have the urge to explore and delve deeper into a given problem, and some enjoy the very act of communicating with their peers. For the successful incorporation of gamification in language lessons, the diversity of learner styles and expectations should be considered. Regular feedback and surveys of student opinions and attitudes can be used to modify, exclude and improve specific gamification aspects in order to make them more suitable for the target learner group.

NOTES

1. Google Apps (2007) available at https://gsuite.google.com/
2. IBM Corp. Released 2020. IBM SPSS Statistics for Windows, Version 27.0. Armonk, NY: IBM Corp.
3. Kahoot! Learning Games | Make Learning Awesome!, Version 2021. Available at https://kahoot.com/

REFERENCES

ABRAMS, S. S. & WALSH, S., 2015. Gamified vocabulary. *Journal of Adolescent & Adult Literacy*, 58(1), 49 – 58. doi:10.1002/jaal.315

ANTIN, J. & CHURCHILL, E., 2011. Badges in social media: A social psychological perspective. In proceedings of *CHI 2011 Workshop Gamification: Using Game Design Elements in Non-Game Contexts*, Vancouver, Canada: ACM.

BAPTISTA, G. & OLIVEIRA, T., 2018. Gamification and serious games: A literature meta-analysis and integrative model. *Computers in Human Behavior*, 92, 306 – 315. doi:10.1016/j.chb.2018.11.030

BARTLE, R., 1996. Hearts, clubs, diamonds, spades: Players who suit MUDs. MUSE Ltd, Colchester, Essex, United Kingdom.

BROWN H. D. & ABEYWICKRAMA, P., 2010. *Language assessment: Principles and classroom practices*. White Plains, NY: Pearson Education.

BUSTILLO, J., RIVERA, C., GUZMAN, J. G. & ACOSTA, L. R., 2017. Benefits of using a mobile application in learning a foreign language. *Sistemas y Telematica*, **15**(40), 55 – 68. doi:10.18046/syt.v15i40.2391

DEHGHANZADEH, H., FARDANESH, H., HATAMI, J., TALAEE, E. & NOROOZI, O., 2019. Using gamification to support learning English as a second language: A systematic review. *Computer Assisted Language Learning.* Routledge, Taylor and Francis, doi: 10.1080/09588221.2019.1648298

DETERDING, S., DIXON, D., KHALED, R. & NACKE, L., 2011. From game design elements to gamefulness: Defining gamification. In: *Proceedings of the 15th International Academic MindTrek Conference: Envisioning future media environments*, 9 – 15. Tampere, Finland: ACM.

DICHEVA, D., DICHEV, C., AGRE, G. & ANGELOVA, G., 2015. Gamification in education: A systematic mapping study. *Journal of Educational Technology & Society*, 18(3), 75 – 88.

HASEGAWA, T., KOSHINO, M. & BAN, H., 2015. An English vocabulary learning support

system for the learner's sustainable motivation. *SpringerPlus*, **4**(1), 99. doi:10.1186/s40064-015-0792-2

HUANG, B., HEW, K. F. & LO, C. K., 2018. Investigating the effects of gamification-enhanced flipped learning on undergraduate students' behavioral and cognitive engagement. *Interactive Learning Environments*, 1–21. doi:10.1080/10494820.2018.1495653

KAPP, K. M., 2012. The gamification of learning and instruction: Game-based methods

and strategies for training and education. San Francisco, CA: Pfeiffer.

LANDERS, R. N., 2014. Developing a theory of gamified learning: Linking serious games and gamification of learning. *Simulation & Gaming,* **45**(6), 752 – 768. doi:10.1177/1046878114563660

LANDERS, R., ARMSTRONG, M. & COLLMUS, A., 2017. How to use game elements to enhance learning: Applications of the theory of gamified learning. 10.1007/978-3-319-51645-5_21.

MCHUCHA, I. R., ISMAEIL, Z. L. & TIBOK, R. P., 2017. Developing a gamification-based interactive thesaurus application to improve English language vocabulary: A case study of undergraduate students in Malaysia. *International Journal of Management and Applied Science* (IJMAS), **3**(3), 46 – 53.

PURGINA, M., MOZGOVOY, M. & BLAKE, J., 2019. WordBricks: Mobile technology and visual grammar formalism for gamification of natural language grammar acquisition. *Journal of Educational Computing Research*. doi:10.1177/0735633119833010

WON, E. S. & KIM, J. R., 2018. The effectiveness of self-directed English learning through SNS: Adopting Facebook based on gamification.

International Journal of Mobile and Blended Learning, **10**(3), 1 – 10. doi:10.4018/IJMBL.2018070101

ZARZYCKA-PISKORZ, E., 2016. Kahoot it or not? Can games be motivating in learning grammar? *Teaching English with Technology*, 16(3), 17 – 36.

ZOU, B., LI, H. & LI, J., 2018. Exploring a curriculum app and a social communication app for EFL learning. *Computer Assisted Language Learning*, **31**(7), 694 – 713. doi:10.1080/09588221.2018.1438474

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