

THEORY AND INSTITUTIONS OF EDUCATION

DOI <https://doi.org/10.30525/2592-8813-2023-1-10>

GAMIFICATION – THE URGENT COMPONENT OF THE FORMATION OF ENGLISH TEACHERS' FLEXIBILITY IN PANDEMIC TIMES: ADVANTAGES, DISADVANTAGES

Olesia Boivan,

*Ph.D. in Pedagogical Sciences,
Senior Lecturer at the Department of Theory and Practice of Translation,
Faculty of Foreign Languages,
Vasyl' Stus Donetsk National University (Vinnytsia, Ukraine)
ORCID ID: 0000-0002-3512-0315
olesiaboivan@gmail.com*

Oksana Kovtun,

*Ph.D. in Philological Sciences,
Associate Professor at the Department of Theory and Practice of Translation,
Faculty of Foreign Languages,
Vasyl' Stus Donetsk National University (Vinnytsia, Ukraine)
ORCID ID: 0000-0002-9139-8987
o.kovtun@donnu.edu.ua*

Abstract. The article deals with gamification – a modern, intensive method of studying the English language in the process of training of the future specialists at higher educational establishments. It is emphasized that there is a clear necessity to avoid excessive passion for education applications because of a danger of one-sidedness and inflexibility in the language studying. The key issue of the article is to highlight the main approaches to the implementation of the gamified process in teaching English at the university in up-to-date conditions (including distance learning), paying attention to the advantages and disadvantages of the mentioned above educational trend, and basing on the pedagogical flexibility.

Key words: Gamification, the skills of critical thinking, language studying, positive motivational context, education applications.

Introduction. The intensive process of the development of all social and educational spheres in our society has accelerated the change of the status of the English language in the system of higher education, which influences not only the teaching methods (from textual-translational to communicative activity), but also the completely new approaches in terms of the pedagogical object interaction. According to the modern requirements, one of the important factors is to absorb this or that information coming from various sources, and also to use it as a stable foundation for further self-improvement in the chosen activity. The general vector in the process of teaching foreign languages at the university becomes focused on the main areas of a particular specialty and involves a continuous search for the ways and approaches to educational process more efficient.

Also the educational system faces the urgent task to form some capabilities for flexible changes in different ways and forms of pedagogical activities, and the developing of the key competencies that correspond to the main tasks of the students. We support the idea, that the most important quality of pedagogical thinking is flexibility (Kuliutkin Y., 2000). This is due to the specific teacher's tasks, namely: the need to switch from one activity to another, flexibility in using educational material for the upgrading of student's personality. Flexibility is interconnected with other qualities of pedagogical

ical thinking: depth, speed, independence and originality. Y. Kuliutkin believes that the flexibility of thinking is manifested in the flexibility of behavior, in the ability to change the strategy of the pedagogical influence in connection with changing of the pedagogical situation (Kuliutkin Y., 2000). Teachers are always in the centre of brand new teaching trends and communication traditions they have to be quick in the space that consists of other teachers, students, authorities and different professional demands. That is why, mentioning positive aspects of others' work, the teachers ought to be flexible and adaptable even in diverse and unpredictable circumstances.

Besides, "concerning these peculiar features of the integral pedagogical process, gamification has become one of such educational forms that meets the current demands and requirements of modern teaching trends. We also see in such playful process the characteristics of some potential changes in the entire educational sphere to a computer-based learning system, which involves minimal active teacher's interference into the whole cooperating educational environment, but requires some IT literacy" – Ibrahim Ouahbi and his colleagues underline this idea (Ouahbi I., 2021).

According to Islam I.J., Md. Sadekur Rahman and Yousuf Mahbubul, "the main purpose of higher education is to produce skilled graduates so that they can think critically and solve real world problems. Presenting a group based solution in a face-to-face class is a common activity in the higher education classroom where other students/peers can actively participate in the follow-up question/answer sessions. Working out a solution together as a group engages students' independent thinking ability and promotes active learning. This means that they have the opportunity to reflect on their own thinking and take it to deeper levels of thinking" (Islam I.J., 2017). However, recent trends show that online support to the higher education class – a form of blended learning is growing day by day.

Gamification is a good alternative educational practice to promote programming teaching, it allows better engagement of students in their learning. Students acquire a reasonable level of abstraction and logic and develop reflections on various course concepts.

So the *object* of the research presented in the article is the process of gamification in formation of teachers' flexibility which is necessary for more productive co-working in the student's environment.

Main part. Analyzing the potentials of educational systems to advance implementing multimedia technologies, Kotevski Z. and Tasevska I. come to the conclusion that educational systems employ an ongoing effort for advancement in order to enhance their educational processes and more effectively transfer the knowledge to their students. In the last couple of decades, the explosive development of Internet and multimedia technologies brought vast possibilities to implement these new paradigms with an aim to improve students' learning and more easily augment their knowledge (Kotevski Z., 2017). One of these advancements is the process of gamification that helps teachers and students upgrade their hard and soft skills in learning languages.

The term "gamification", its methods, techniques, and basic principles came to us from the foreign researches and, above all, related to the business sphere (Werbach K., 2020), although not limited with it, as the other industries also needed changes in approaches and structure. The scientific research of K. Kapp became fundamental, after he had changed the approaches and methods of the learning process, taking into account the peculiarities of the game, and gave them the characteristics of the mobility, enthusiasm and ease (Kapp K. M., 2012). The significant potential for the use of game mechanisms in the educational environment has become a widely used practice and a very effective means of practice, which has attracted the attention of different researchers. In particular, N. Kravets explores the stages of creating a gamified system in the educational process of the universities (Kravets N. S., 2017). O. Tkachenko considers the gamification issue of formal and non-formal education, emphasizing the need of using games, game techniques and game practices for educational purposes (Tkachenko O., 2015). L. Kotlyarova, Y. Gapon, T. Pankiv, L. Passov, T. Sviridyuk, L. Sergeeva were engaged in the analysis of the efficiency of game application while studying English. Based on the theoretical aspects of the problem, we can safely say that gamification makes any pro-

cess more enjoyable and exciting, because the game focuses on many points of motivation – competition, positive excitement, prize incentives, the logic of passing various levels of tests.

S. Deterding and his colleagues consider four concepts based on the idea of the game: gamification, serious games, toys and playful design (Deterding S., 2011). The differences between them lie in two dimensions:

- games / entertainment (gaming / playing) – indicates the direction and regulation of activities;
- whole / parts – indicates the degree of integration of game elements into the process.

Serious games have a specific purpose, aimed at solving real life situations. Toys are games that do not have clear rules and are not aimed at a specific result or goal; they are focused only on experiencing positive emotions or casual research. Playful design also does not have a specific purpose, which is supported by the rules; it is used to make the process more humane, enjoyable and easy to understand (Deterding S., 2011). Gamification uses elements of the game, but the basis of the process remains the same. However, the boundaries between these concepts are rather theoretical, instead, in practice they can be successfully combined (Meske Ch., 2016).

Besides it was mentioned by some researchers, “the essence of video games involves perseverance, intelligence, practice, and learning in order to succeed” (Gray P., 2012). So, games are great motivators, they inspire students to learn and to get something new.

The academic achievement of students is not recognized without understanding their motivation to learn through a framework that asserts the goals of learners. In other words, it can be said that the academic achievement of students in the classroom is an indication of many factors, some of which are related to motivation and the other factors are related to the environmental conditions (Abdo Hasan AL-Qadri, 2019).

The other scientists insist that “gamification has been shown to engage and motivate learners when used properly in the classrooms” (Lee J. J., 2012). According to Werbach and Hunter, it is “the use of game elements and game design techniques in non-game contexts. In addition it deals with the two clusters of Intrinsic and Extrinsic motivation, which are necessary in the learning experience” (Werbach K., 2012).

In general, the use of information and communication technologies (ICTs) in development and social change efforts (ICT4D) is becoming widespread in the hope that providing ICTs can bring about social and economic benefits to promote development (Wichitra Yasya, 2020). In our peculiar case we deal with the process of gamification, which also may be interpreted as one of the effective communication technologies.

So, the *purpose* of the article is to highlight the main approaches to the implementation of the gamified process in teaching English at the university in up-to-date conditions (including distance learning), focusing on the advantages and disadvantages of the mentioned above educational trends, and basing on the pedagogical flexibility.

Materials and Methods. Conducting our work we used such methods of scientific research as collecting data (theoretical basis), analyzing the information in accordance with inductive and deductive methods, general description, experimental qualitative research. For the theoretical basis in order to collect some data for our work it was determined to use the widespread abstraction, formation of concepts, construction of hypotheses, theories. Our piece of scientific research belongs to the thematic (target) investigation that includes such theories, which aim to address a specific and narrow problem, in our case highlighting of the main approaches to the implementation of the gamified process in teaching English (including distance learning), focusing on the advantages and disadvantages of the mentioned above educational trends, and basing on the pedagogical flexibility. As the general description of the mentioned issue was necessary, different theoretical sources were taken into consideration for this purpose. Also for achieving this goal it was necessary to select the facts, classify them, analyze, compare, generalize and explain with the help of deduction and induction. This is the

only way to install causal relationships of the investigated phenomena, to realize objectives and stable dependencies between all components of the studied problem.

Results and Discussions. Realization of progressive technologies of education is connected with comprehension and perception in new way of ideas, tasks, and validities of simultaneous actions in intra-situational relationships of a teacher and students (Mindia E., 2017).

It is a common fact that the term "gamification" – also a progressive technology in education is mostly associated with computer games, but it is not a basic and necessary aspect of the process. Even without the necessary equipment (computer, laptop, projector, interactive whiteboard, etc.) you can gamify the process of learning English. However, it requires more thorough training from the teacher: it is necessary to collect appropriate material, prepare the plan of the chosen topic, determine the goals for students, but the games should not be short-term and consist of easy ways to perform everything. It is worth thinking about mazes of complications and logical problems with step-by-step solutions. To achieve this goal, you need to divide the whole process into certain steps that can be tracked. For example, individualization of tasks according to the level and needs of the group.

The next stage is to develop the game itself with the graphical representation of each level. For the students' benefit they can be divided into subgroups with their names, avatars, logos, symbols. The teacher needs to think about a system of bonuses or rewards for the correct, timely or additional performance of the certain tasks, it will contribute to the emergence and development of team spirit and maintain the overall atmosphere. As practice shows, bonuses can be varied, from sweets to accumulative points, which affect the modular results.

Based on the analysis of some scientific sources, it is determined that gamification is an active process of the application of some game mechanisms in the situations that are focused as much as possible on a positive motivational context for getting an emotional encouragement and overcoming certain psychological and moral barriers.

The key explanation of gamification is that the components of the game are not used in the game environment, but closely related to the acquisition of knowledge and skills of real educational requirements. First of all, we pay attention to cognitive interest, interaction and a burning desire to act, which results in improved knowledge and skills and increased interest of participants.

Based on this, it can be distinguished 3 levels of gamification:

– using a system of points, badges (which mark achievements) and player ratings (leaderboards) in the training course;

– adding a plot and positive atmosphere to the game. Providing educational information in a gradual mode, a significant complication of content from lesson to lesson, as well as the transition to a new topic is presented as a huge leap forward. These include features such as intra-system interaction between users, the possibility of instant feedback and interactive educational videos, where the plot varies depending on the actions of students;

– development of the educational games that contain knowledge and entertainment (Kravets N. S., 2017).

The basic principle of gamification is to provide constant feedback from the user, which provides the possibility of dynamic correction of the participants' behavior.

It is worth paying attention to the main aspects of gamification:

– dynamism – the use of software scenarios that require the attention of participants and real-time response;

– traditionalism – the use of script elements specific to the game script (gameplay), such as virtual promotions, statuses, virtual goods;

– aesthetics – creating a general game impression, which contributes to a positive, emotional involvement of the user;

– social interaction – a wide range of techniques that provide user's interaction (Buhaichuk K. L., 2015).

We consider the fact that life of modern youth in the era of total computerization and access to information, the Internet, along with all electronic devices, applications, games are an integral part of the human existence. It is worth mentioning that today it is known that pilots and surgeons master the skills of their professions quicker with the development of their motor skills of the fingers, and lightning reaction, when you need to switch your attention from one subject to another, playing computer and video games. Therefore, it is logical to use this fact in the educational process. It is worth noting that the possibilities of using the game technologies are endless and are in a constant developing and upgrading process. You can play any non-game content, which is characterized by low motivation.

A successful example of the process of gamification of English lessons can be a prototype of the famous American television quiz “Jeopardy” based on the platform Jeopardy Labs. It is also possible to prepare this game without relying on an electronic resource, preparing five categories of questions, clearly outlining the rules of this activity. In the original version of the quiz, the participants are asked to present the tasks in the form of statements, and the answers to them in the form of questions. At the request of the teacher and according to the level of the group, this condition can be adapted.

A Project method of co-working, as another type of active gaming activity, often lasts several weeks, months or the whole semester, in many ways it is close to role-playing, and especially business games. It was first put into practice through the textbooks of the Project English series (Abdo Hasan AL-Qadri, 2019). When completing a project, students receive a task that requires the active participation of the whole group. The communicative-oriented learning of the foreign languages, which takes place in conversational classes, creates a sense of personal importance during the full performance of the task. For students, motivation becomes internal, not external, because the project belongs to them. They autonomously decide how to perform the tasks, that is, in the center of educational activities there is a student.

We can also single out the use of the DuoLingo platform, which combines the possibility of learning of a language online as another example of gamification. At the initial level, users translate basic, simple sentences that are grammatically simple, while experienced users are given tasks of the increased complexity. As a result, everyone develops and improves language skills according to their level and perception. Because the system is adaptive, it tracks all activities: lessons, translations, testing and workshops in order to provide feedback to the student and plan further activities.

However, the use of educational platforms such as DuoLingo is mostly aimed at the development of the language rather than communication skills, and is limited to mostly everyday topics. In addition, most of the additional, more interesting and complex tasks are not free of charge. But the most significant disadvantage, in our opinion, is that the teacher is deprived of the opportunity to modify the educational process according to the needs and requests of students, and therefore can use these resources only as additional tools.

There is also Duolingo Plus which is a perfect version of Duolingo, where you can download lessons for offline learning, as well as a large number of tests to practice skills and abilities in the language you are learning.

With Qlango you can choose whether to learn words or ones with examples, as well as how to answer the questions (find 1 correct answer among 4, forming sentences, writing answers for dictation, translation into a foreign language, find synonyms or antonyms). This program really has all the characteristics of the game, so it is easy to get carried away to improve the language. This way, each user can install the program according to their needs, because we all learn differently. If you click on a word number, Qlango will read that word, not the whole sentence. It helps us to distinguish one word from another.

Free online service Kahoot allows you to create interactive educational games: quizzes, discussions, surveys. Such kinds of work are effective in training and testing the knowledge. And also the service can be useful for various forms of scientific, methodical and organizational work in the

conditions of distance learning. Participation in games created with the help of the service promotes communication and cooperation in the group, raises awareness in information and communication technologies, stimulates the development of critical thinking.

Nearpod is an online platform that allows teachers to create presentations for their lessons and share them with students during the lesson. In addition, Nearpod provides variety of ready-made, fully interactive tutorials developed by experts, as well as importing lessons from any file type and adding interactive elements, web links or videos to them. Teachers can synchronize their lessons with students' gadgets, creating individual tasks and tracking their performance. It should be noted that all electronic resources for the gameplay of the English language learning process are necessary for online learning, which has set new tasks for everyone, but not all have solutions. This platform includes the ability to add some ready-made presentations and lessons in the Zoom conference.

Today there are many open platforms that can be easily integrated into the educational process (online or offline), building an individual line, creating interactive games, quests and quizzes. For example, with the help of Content Generator, choosing one of 15 templates, the teacher can create a series of interactive exercises and games in order to learn the vocabulary of the lesson. In practical terms, this is easy to do by posting the appropriate game on the Moodle platform which is now used by many educational institutions, or simply open the web page using mobile by phone. Moodle (Modular Object-Oriented Dynamic Learning Environment, pronounced "Moodle") is a modular object-oriented dynamic learning environment, also called a learning management system (LMS), a course management system (CMS), a virtual learning environment (VLE) or simply a learning platform that provides teachers, students, and administrators with a highly developed set of tools for computer-based learning, including distance learning.

It was noted that in the process of the development of new technologies, the role of games during the English lessons should not be underestimated. It is possible to gamify only those processes which have clear and strict objectives with a number of proper conditions. Sometimes you have to overcome the challenges in the forms of mistakes several times to make sure that the game is appropriate and effective. Despite the fact that a large number of educators consider games to be just a fun and time-consuming activity, we believe that the use of games in the process of learning the language has many *advantages*:

1) the playful process stimulates the interest of students during the activities, which, in turn, helps them to be motivated, and the desire to learn on an emotionally positive basis and without fear becomes stronger;

2) the use of games in English classes reduces the level of excitement of recipients, increases self-confidence. Some students often feel fear or discomfort when making mistakes in speech, or are simply afraid of criticism and corrections of the teacher, in the game situation they forget about their experiences, focusing on the task and not on the correct use of any language structures, it automatically develops communication skills, which is the main task of the teacher-practitioner;

3) with the help of the games, participants are placed into realistic situations in which they realize the connections between language and real life, in particular, games promote the active participation of students with higher and lower levels of knowledge;

4) games can be used in any language teaching methods (reading, writing, speaking and listening), allowing to apply practically grammatical structures and vocabulary on the topic. Students learn certain language structures on a subconscious level in the gamified process, focusing on the activity itself;

5) games encourage creative and spontaneous use of language, and promote student's activity, creating a collaborative environment, and developing the skills of critical thinking.

In short, the using of games is not the enemy of English learning. It can be a new model of learning and perception of the information. Games always bring a kind of challenge for players, but in the

process of it the efforts are rewarded, they gradually achieve their goals and in the end they get a real pleasure. The main idea of using the game elements is to create the space for productive cooperation.

The disadvantages of the gamification in foreign language classes are the following:

1) excessive use of games in the classroom can take exactly the time that students could use for other types of work;

2) the free atmosphere during the games, in case of their frequent use, can prevent further concentration of students on serious work during the lesson or preparation for the exam;

3) difficulties in ensuring the same activity for players in performing tasks can be another disadvantage of gamification in English classes. It is here that students will show their individual characteristics of a character, and it will be extremely difficult to get the activity in participation from everyone.

So, the abuse of the gamified process can have all the above-mentioned negative consequences, but a properly defined measure will contribute to both language learning and learning in general.

To determine clearly the positive and negative aspects of gamification, 45 students were interviewed. There was an experiment with those recipients, using the above-mentioned game techniques. The results are shown in the table 1.

Table 1

The results of the survey

Questions	Yes	No	The number of participants
Do you support the teacher's desire to gamify the process of learning English?	46	14	60
Does the gamified English learning process have a positive effect on the development of communicative skills?	49	11	60
Should we use different online platforms to learn new lexical items?	52	8	60
Are there any disadvantages in the gamified process of learning English?	41	19	60

Conclusions. Thus, the potential for gamification is extremely broad and powerful and is not limited by educational demands, the time of innovative technologies and social changes (online learning) provides the teachers with constant challenges, encouraging them to look for some new forms and methods of interaction with students, using the flexibility and creativity. We can confess, routine in studying reduces motivation and distracts the participants from educational process. It is easy in this case to become the victim of procrastination and lose the necessary motivation. The gamified process helps us avoid that negative impact. That is why during the period of the quarantine, when everything is not characterized by the lively diversity the gamification is the best way to overcome the routine. Many additional resources have become available to us, which diversify the educational and cognitive activities of the students. However, no matter how positive and exciting the idea of complete transforming the educational process into an exciting game may seem, it is important to remember that it should correspond to the educational content and goals of learning. It is highlighted in the article that the advantage of using gamification in the learning process is the ability to provide accessible feedback that helps students to succeed in their language studying and have a positive attitude towards their education.

The process of gamification should not be a priority, its place in the additional, complementary baggage of hard and soft skills, although such activities are quite effective for visual recognition of student's achievement, ways of learning content. But we believe that in the educational process, clear educational goals, objectivity of the obtained results, their possible application in real life and

professional flexibility are the necessary components of today's educational approaches. It should be mentioned that gamification in learning English, uses information resources and integrates them into the multitasking process for both students and teachers, it also helps to solve a number of practical tasks connected with the organizational techniques. In the process of playing games students develop their communication skills, promote the formation and development of their cognitive interest.

Despite all the benefits of gamification, it is necessary to avoid excessive fascination with gaming technology, because there is a danger of one-sidedness and inflexibility. Under the conditions of correct systematized use of the games, the following results can be obtained: increasing the level of linguistic and communicative skills; development of logical and critical thinking, skills of analysis, observation, persistence; formation of motivational and emotional aspect, as well as such personality qualities as willingness to cooperate and socialize.

References:

1. Kuliutkin Y. (2000). Pedagogichskoe myshlenie [Teacher's thinking]. Retrieved from: <https://www.dissercat.com/content/psikhologiya-professionalnogo-pedagogicheskogo-myshleniya>
2. Ouahbi I., Darhmaoui H., Kaddari F. (2021). Gamification Approach in teaching Web programming courses in PHP: Use of KAHOOT Application. *Modern Education and Computer Science*, 2021, 2, 33-39. Published Online April 2021 in MECS (<http://www.mecspress.org/>). DOI: 10.5815/ijmecs.2021.02.04
3. Islam I.J., Md. Sadekur Rahman and Yousuf Mahbul. (2017). ICT in higher education: Wiki-based reflection to promote deeper thinking. *Modern Education and Computer Science*, 2017, 4, 43–49. Published Online April 2017 in MECS (<http://www.mecspress.org/>). DOI: 10.5815/ijmecs.2017.04.05
4. Kotevski Z., Tasevska I. (2017). Evaluating the potentials of educational systems to advance implementing multimedia technologies. *Modern Education and Computer Science*, 2017, 1, 26–35. Published Online January 2017 in MECS (<http://www.mecspress.org/>). DOI: 10.5815/ijmecs.2017.01.03
5. Werbach K. (2020). Gamification. 2020. Retrieved from: <https://www.coursera.org/learn/gamification>
6. Kapp K. M. (2012). The gamification of learning and instruction: game-based methods and strategies for training and education, John Wiley & Sons, 2012.
7. Kravets N. S. (2017). Etapy stvorennia heimyfikovanoi systemy dlia vykorystannia v navchalnomu protsesi VNZ [The stages of creation of the Gamified system in teaching process]. *Visnyk Kharkivskoi derzhavnoi akademii kultury – Bulletin of the Kharkiv State Academy of Culture. Series: Social Communications*, 2017, № 50, 198–206.
8. Tkachenko O. (2015). Heimyfikatsiia osvity: formalnyi i neformalnyi prostir [Gamification of Education: formal and informal aspect]. *Aktualni pytannia humanitarnykh nauk – Current issues of the humanities*, 2015, № 11, 303–309.
9. Deterding S., Dixon D., Khaled R., Nacke L. (2011). From Game Design Elements to Gamefulness: Defining Gamification. *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, MindTrek, 2011.
10. Meske Ch., Brockmann T., Wilms K., Stieglitz S. (2016). Social Collaboration and Gamification, 2016.
11. Gray P. Video game addiction: Does it occur? If so, why? *Psychology to Learn: Freedom to Learn*, 2012. Retrieved from: <http://www.psychologytoday.com/blog/freedom-learn/201202/video-game-addiction-does-it-occur-if-so-why>
12. Abdo Hasan AL-Qadri, Zhao Wie. (2019). Motivation to learn and its relationship to academic achievement among students of basic Arabic schools in China. *Modern Education and Computer Science*, 2019, 4, 1–12. Published Online April 2019 in MECS (<http://www.mecspress.org/>). DOI: 10.5815/ijmecs.2019.04.01
13. Lee J. J., Hammer J. (2012). Gamification in education: What, how, why bother? *Academic Exchange Quarterly*, 2012, 15 (2).

14. Werbach K., Hunter D. (2012). *For the Win: How Game Thinking Can Revolutionize Your Business*. Philadelphia, PA: Wharton Digital Press, 2012.
15. Wichitra Yasya. (2020). Rural improvement through education: case study of a learning community telecentre in Indonesia. *Modern Education and Computer Science*, 2020, 4, 12–26. Published Online August 2020 in MECS (<http://www.mecs-press.org/>). DOI: 10.5815/ijmecs. 2020.04.02
16. Mindia E. Salukvadze, Guram N. Beltadze. (2017). Strategies of nonsolidary behavior in teaching organization. *Modern Education and Computer Science*, 2017, 4, 12–18. Published Online April 2017 in MECS (<http://www.mecs-press.org/>). DOI: 10.5815/ijmecs. 2017.04.02
17. Buhaichuk K. L. (2015). Heimyfikatsiia u navchanni: sutnist, perevahy, nedoliky. 2015. Retrieved from: <http://dspace.univd.edu.ua/xmlui/handle/123456789/1319>
18. OnlineserviceKahoot. *Pedrada*, 2015. Retrieved from: <https://www.pedrada.com.ua/news/276-kahoot>