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INCREASING EFFICIENCY OF FOREIGN-LANGUAGE TEACHING: GAMIFICATION TECHNOLOGIES IN EDUCATION

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Abstract

One of the issues related to teaching a foreign language is student involvement in the learning process. In the modern technological world, the teacher needs to expand their methodological toolbox by adding the latest methodological discoveries to modernize the classical model of a practical lesson. In view of this, the transfer of gaming elements into the non-gaming environment of teaching a foreign language can improve the results of learning. The article deals with the process of gamification as a promising innovative means of improving the foreign-language competence of college-level students in the process of teaching foreign languages. An analysis of academic literature on the implementation of gamification into the educational process has been carried out. Based on an expert survey, the authors have determined the key technologies of game-based educational activity adopted in foreign language teaching, the connection between these technologies and information technology use and the acceptability of certain technologies of game-based educational activity depending on the type of a higher education institution.

Keywords

Gamification – Game – Foreign language – Interactivity – Fight against social security fraud

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Introduction

The rapid development of all areas of modern society causes the change of status of foreign languages in the system of higher professional education which leads to not only changing education methods (from text- and translation-based to communication- and activity-based). Today, it is crucial not only to remember information but to use it as a basis for further self-improvement in the chosen area of expertise. Therefore, the goals and the content of foreign language teaching in higher education institutions become specialty-oriented and involve continuously seeking ways to improve the efficiency of the educational process. Gamification has become one of such forms of education that meets the demands and challenges of the time. For most pedagogues, the process of gamification became a significant addition and expansion of traditional teaching opportunities[1]. Others saw its potential to change the entire education paradigm towards the interactive education system that requires minimal teacher involvement[2].

Gamification, i.e. using game-based technologies to solve non-game-related tasks or solving real-life tasks with the help of game-based elements and technologies, is becoming increasingly popular in business, especially various training sessions for employees aimed at significantly increasing their work efficiency[3]. The term "gamification" in reference to such game-based forms of staff training was proposed by Nick Pelling, a British computer programmer and inventor, in 2002. The same year marked the emergence of the movement Serious Games Initiative that united enterprises in the private sector of the economy that extensively used game-based technologies in staff training[4].

Researchers propose various definitions for the term "gamification". In particular, L. Wood[5] defines gamification as the process of using the game-based mechanism and thinking to attract a larger audience and solve problems. K. Seaborn[6] believes that gamification is the implementation of game-based technologies to make tasks more exciting and interesting. D. Thornton[7] defines "gamification" more broadly and clearly as the realization of principles of gaming mechanics, aesthetics and thinking to involve students in the active learning process, increase motivation and solve problems.

From business, the movement associated with gamification implementation in the aforementioned meaning extended into higher education, practically creating a new game-

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[1] G. R. Kelberer, "Perspektivy primeneniya printsipov igrofikatsii v podgotovke pedagogicheskikh kadrov", Pedagogicheskoe obrazovanie i nauka num 4 (2014): 144–147.

[2] I. Yildirim, "The effects of gamification-based teaching practices on student achievement and students' attitudes toward lessons", Internet and Higher Education num 33 (2017): 86-92.

[3] A. V. Markeeva, "Geimifikatsiya kak instrument upravleniya personalom sovremennoi organizatsii", Rossiiskoe predprinimatelstvo Vol: 16 num 12 (2015): 1923-1936.

[4] S. Deterding; D. Dixon; R. Khaled y L. Nacke, From game design elements to gamefulness: Defining "gamification". Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments (pp. 9-15) (NY, USA: ACM, 2011).

[5] L. C. Wood y T. Reiners, Gamification. In M. Khosrow-Pour. (ed.), Encyclopedia of Information Science and Technology (pp. 3039-3047). 3rd ed. (Hershey, PA: Information Science Reference, 2015).

[6] K. Seaborn y D. I. Fels, "Gamification in theory and action: A survey", International Journal of Human Computer Studies num 74 (2015): 14-31.

[7] D. Thornton y G. I. Francia, "Gamification of information systems and security training: Issues and case studies", Information Security Education Journal Vol: 1 num 1 (2014): 16-24.

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based paradigm for teaching various subjects at universities specializing in economics, sciences, environment, humanities and any other field[8]. The significant potential of using game-based mechanisms in non-game-related context, in particular, education, became common practice and an exceptionally efficient teaching tool which attracted the attention of Russian scholars. For example, L.P. Varenina studies the stages of development of gamified systems in the educational process of higher education institutions[9], B.P. Dyakonov explores the gamification of formal and informal education[10].

The incorporation of games into the educational process is not groundbreaking as it not only brings variety to the routine of standardized exercises and tasks but also significantly increases motivation, stimulates cognitive activity and satisfies the natural human proclivity for game-based activities[11]. Essentially, games are a perfect educational environment that activates cognitive activity and encourages one to make unconventional decisions. The game-based form allows one to gain the necessary experience, explore the limits of the possible and make mistakes as one can always start the game over. According to scholars, gamification is particularly valuable because the game-based principle fosters the development of a conscious learning experience[12].

Researchers see the benefits of gamification in teaching various subjects as 1) the involvement of students in activities; 2) a significant increase in students' learning motivation which enables them to concentrate and devote more effort to educational activity implemented through game-based technologies and to engage in the activity longer without distractions; 3) a corresponding increase in the probability of successfully achieving the learning goal[13]. Thus, by positively influencing the behavior of students as subjects of education through increased motivation, stimulating learning activity of the subjects, gamification substantially improves the results of learning activity[14]. The need for gamification is supported by the fact that young people today were born in the era of total computerization when the Internet and all electronic devices and games are an integral part of life. Therefore, it would be logical and feasible to also use this fact in the educational process[15].

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[8] R. N. Landers y R. C. Callan, Casual social games as serious games: The psychology of gamification in undergraduate education and employee training. In Serious Games and Edutainment Applications (pp. 399-423) (London: Springer, 2011) y C. H. H. Tsay; A. Kofinas y J. Luo, "Enhancing student learning experience with technology-mediated gamification: An empirical study", Computers & Education num 121 (2018): 1-17.

[9] L. P. Varenina, "Geimifikatsiya v obrazovanii", Istoricheskaya i sotsialno-obrazovatelnaya mysl num 6-2 (2014): 314-317.

[10] B. P. Dyakonov, "Geimifikatsiya v asinkhronnom obrazovatelnom protsesse", Istoricheskaya i sotsialno-obrazovatelnaya mysl Vol: 8 num 1-1 (2016): 143-147.

[11] R. S. Alsawaier, The effect of gamification on motivation and engagement", The International Journal of Information and Learning Technology Vol: 35 num 1 (2018): 56-79.

[12] T. Aldemir; B. Celik y G. Kaplan, "A qualitative investigation of student perceptions of game elements in a gamified course", Computers in Human Behavior num 78 (2018): 235-254.

[13] H. A. Spires y J. C. Lester, "Game-based learning: creating a multidisciplinary community of inquiry", On the Horizon Vol: 24 num 1 (2016): 88-93 y K. Davis; H. Sridharan; L. Koepke; S. Singh y R. Boiko, "Learning and engagement in a gamified course: Investigating the effects of student characteristics", Journal of Computer Assisted Learning Vol: 34 num 5 (2018): 492- 503.

[14] G. Surendeleg; V. Murwa; H. -K. Yun y Y. S. Kim, "The role of gamification in education – A literature review", Contemporary Engineering Sciences Vol: 7 num 29 (2014): 1609-1616.

[15] L. Szegletes; M. Koles y B. Forstner, "Socio-cognitive gamification: general framework for educational games", Journal on Multimodal User Interfaces Vol: 9 num 4 (2015): 395-401.

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However, one must remember that the mere implementation of game-based elements during foreign-language lessons is hardly considered gamification. First of all, the teacher should direct the students towards a clear goal and then, if possible, personalize the game-based content taking into account its four main components[16]: interaction (wide range of techniques ensuring social interaction between users), dynamics (using a captivating plot that would attract users and elicit a real-time response, mechanics (using virtual awards, statuses, points, levels and other elements typical of the gaming process) and aesthetics (creating the general atmosphere of the game that ensures emotional engagement).

In the context of the broad movement that focuses on the gamification of the learning process in higher education, it is very strange that the concept of gamification is hardly mentioned in the modern methodology of teaching foreign languages at a university, although various types of educational games have been used to teach languages for decades. The reason why methodologists, foreign language teachers and scholars in the field of methodology of teaching foreign languages at university do not address the concept of gamification is that gaming technologies that have been recently introduced in the teaching of other subjects are based on the use of information technologies. Teachers of foreign languages might not have seen it as beneficial as they already had a wide range of educational gaming activities that did not necessarily require using information technologies.

However, first, there is no reason to suggest that there is no gamification without information technologies. Second, enrichment of the aforementioned wide range of games that are used in language training courses with computer and online components can only benefit this training.

The purpose of the study is to justify the methodological and practical foundations of the use of gamification in the process of teaching foreign languages.

The hypothesis of the study: to increase the efficiency of foreign language learning, it is possible and necessary to gamify the process of teaching foreign languages at university without computers or with wide use of information technologies.

The results of the study point to the conclusion that the goal set in the study was achieved.

Methods

In the study, we used such methods as:

- the analysis of academic literature on the issue of gamification in education in foreign language training;

- an expert survey that allowed us to establish:

a) the key technologies of game-based educational activity used to teach foreign languages;

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[16] W. Huang y J. C. Ho, "Improving moral reasoning among college students: A game-based learning approach", Interactive Learning Environments Vol: 26 num 5 (2018): 583-596.

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b) whether all the listed technologies refer to the process that the general pedagogy of higher education considers to be gamification in the educational process of a higher education institution;

c) the connection between these technologies of game-based educational activity and information technology use;

d) which of the reviewed technologies of game-based educational activities can be used both in all types of universities, and which can only be used for teaching foreign languages at linguistic or non-linguistic universities.

Thirty-six experts – foreign language teachers at Russian universities were invited to participate in the expert online survey.

Results

According to the experts, the following are the key technologies of game-based educational activity that are used in foreign language teaching (Table 1).

№	Technologies of game-based educational activity	%*
1	language games	83%
2	dramatizations	78%
3	role-playing	94%
4	situations of social contact	67%
5	business games	81%
6	brainstorms, case/situation study and discussion, student presentations	86%
7	project work	81%

Note: based on the expert survey; * – percentage of references by experts

Table 1

The key technologies of game-based educational activity used in foreign language teaching

The experts noted that the implementation of the aforementioned game-based technologies to increase the efficiency of teaching foreign languages requires the teacher to be thoroughly prepared for the game (Table 2).

№	Requirements for preparation for the game	%*
1	One must define the goal that the students work towards but the goal should not be a short-term one. For example, improving the skills of working with professional texts.	83%
2	The achievement of the goal should be divided into stages that can be tracked. It would be advantageous if the teacher can personalize and categorize the process according to the level and the needs of the group.	81%
3	The next stage is designing and developing the game itself.	78%
4	Every student should have an opportunity to present themselves. For the sake of convenience, students can be divided into subgroups, assigned names and given profile pictures.	78%
5	The teacher should draw up a system of bonus points and rewards for completing main or additional tasks or stages correctly and in time.	69%
6	Group participation in the gamification process should foster team spirit and promote the overall playful atmosphere.	67%

Note: based on the expert survey; * – percentage of references by experts

Table 2

The requirements for preparation for the game by the teacher

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Discussion

Let us examine in more detail the list of game-based technologies that are used in foreign language teaching.

According to the experts, the first of such technologies are language games aimed at learning linguistic basics of phonetics, vocabulary and grammar (in the past few decades, linguistic sociocultural games were added to them; these games were aimed at teaching foreign cultural phenomena, most importantly, the standards of foreign communicative behavior). A typical example of a language game is the game "Who is this?". One student, using a foreign language, briefly describes a person who, for example, is a well-known literary character, a famous historical figure or a real person that everyone present knows. Certain characteristic features of this person are provided, but their name is not given. Those present can ask a predetermined number of clarifying questions, to which only "Yes" or "No" answers are possible, and after that, they must name the person who was meant. If they succeed, they win, if not, the one who described the person wins. Like the game above, all other language/linguistic sociocultural games are competition-based.

The experts listed the so-called dramatizations as the following type of game-based technologies. The main feature of dramatizations is that stage performances, act out certain scenes or communicative situations based on the provided full information about what and how to say and do not deviate from this information in the process of implementing a given scenario of foreign language communication that is based on it. For example, students read a literary work, an excerpt of which describes a conversation between two characters. Based on the description, students act out a dialogue in which they recreate how this conversation might sound.

The experts believed that the most common and popular type of game-based activity in foreign language training is role-playing games. They are an integral part of the communicative technique of teaching foreign languages in general and are based on modeling situations of foreign language communication. In these situations, each communicant plays a given role (passenger, buyer, patient, visitor, etc. – the number of possible roles is limited) and solves certain extralinguistic tasks of communication-based on its purpose, situation, circumstances of the communication, other speakers' intentions and goals, the relationships between them and the roles that other participants of communication play. The roles and communication situations (that sometimes, but not always, coincide with the goals of communication) are determined by the teacher, whereas the behavior within the role itself and the corresponding foreign language communication is realized by the participants of the game independently during the work in pairs or groups.

The experts specified that one should distinguish between role-playing games and situations of social contact that are also part of gaming technologies used to study foreign languages. One of the experts gave an example of social contact, "Contact the seller at the newsstand, ask if they have the newspaper that you are interested in. If they do, ask how much it costs and purchase it. If not, ask when or where you can get it". There is no problem to be solved, therefore, in the corresponding real-life situation, the communication occurs almost automatically. However, in a role-playing game, there is always a problem and it is necessary to coordinate one's role-playing behavior with it.

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According to the experts, business games are one of the most important game-based technologies for teaching a foreign language at university. Business games model the various aspects of professional activity only by means of the language being studied and create the conditions for this activity that are as close as possible to real ones. On the surface, as the experts pointed out, business games are similar to role-playing games (there is dialogic communication in pairs or groups), but the difference lies not only in the professional as opposed to everyday subject-based content of communication. The problem in the role-playing game arises through *a conflict of interest* (for example, a conversation between the buyer who came to return the purchased item with a defect and get the money back and the seller who will lose the commission if they return the money for the sold item). In a business game, the problem arises through *a conflict of opinions, relationships and approaches* (for example, different approaches to solving the same production problem that all communicants are trying to solve and achieve the best result).

The experts noted that game-based educational activities aimed at studying a foreign language at university also include such related types of purely communicative exercises as brainstorming, case/situation analysis and discussions as the highest and most difficult of all three types of discussions, as well as student presentations, for example, on profession-related topics. Their playful nature is due to the fact that the substantive content and the essence of foreign language discussions and students' presentations is associated with language learning only indirectly. In terms of subject content, such a discussion is a game-based model of reality, in particular, professional reality.

The last technology of gaming educational activity that was mentioned during the discussion is project work which differs significantly from the previously described technologies in two respects. First, as the experts noted, most of the previous technologies of game-based educational activities can be used within project work as its components. Second, all previous technologies can be interpreted as separate as, no matter how regularly they are used, they are independent from all other exercises, and these exercises can be performed without them. From this perspective, project work is an all-encompassing technology of educational activity that covers the entire educational process for a long time (from an academic year to a full language course), subjugating and attracting many other types of purely communicative exercises.

Project work, which most often lasts for several weeks, months or the entire academic year, is in many ways close to conducting role-playing games and especially business games. It was first put into practice in the textbooks of the Project English series[17]. When completing an educational project, students receive a project task that requires multifaceted activities of the entire group — for example, to start publishing an online newspaper in English. To do this, they distribute functions and responsibilities among themselves: someone plans and edits the newspaper, others (correspondents) gather material and write articles in accordance with the editor's tasks, someone types out the text and produces illustrations, etc. A newspaper prepared for publication on the Internet is a material product of project activity. Such educational activity as completion of training projects, according to the experts, is usually very effective. In communication-oriented teaching of foreign languages, this activity provides a sense of personal inclusion in activities, which is an incentive for work. For students, motivation becomes internal instead

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[17] S. Kim, "Effects of the gamified class in engineering education environments", Journal of Convergence Information Technology Vol: 8 num 13 (2013): 253-260.

of external because the project belongs to them. Students independently decide (although in consultation with the teacher) what to do and how, so the student, and not the teacher, is at the center of the educational activity.

To find out whether the aforementioned technologies of gaming educational activities used in teaching foreign languages refer to gamification in the general pedagogical sense, it is feasible to turn to the parameters of gamification identified by M. Herger[18]. According to the scholar, these parameters must coincide with the parameters of professional activity since gamification is carried out precisely to improve the latter. The parameters common for gamification and professional work include lack of spontaneity (that is, like professional activity, gamification is always carried out with intent, according to plan, and does not arise impulsively), the presence of rules, a clearly defined and conscious goal, a well-adjusted structure, a predetermined expected result and systematic realization. These parameters set gamification and professional activity apart from ordinary games, such as, for example, children's games. The latter are characterized by spontaneity and may lack clearly formulated rules, a conscious and explicitly formulated goal, a well-adjusted structure and a predetermined expected result (although they are present in certain cases, the result is not educational or professionally significant). It is not possible to implement such games systematically.

If one compares the parameters of all the aforementioned types of game-based educational activities in foreign language classes with the parameters identified by Herger for gamification and professional activity, then one can note that they are identical. None of the types of gaming activities is carried out spontaneously, but always according to the plan of the teacher or the compiler of the training materials. Each type of activity is carried out according to certain rules listed in the instructions for the game-based educational task, and each has a specific educational goal which (in the conditions of a language course at university) is always focused on achieving a specific professional goal.

For example, in a business game that simulates negotiations in a foreign language, the goal is to master the skills and abilities to conduct such foreign-language negotiations to freely use these skills in future professional work. It is the formation and development of such skills and abilities that are the expected results of educational gaming activities focused on future professional work. Moreover, this activity must be structured because it does not occur spontaneously like a children's game; it is developed purposefully and in advance by compilers of educational materials, authors of textbooks or directly by teachers. Finally, game-based educational activities in a language course can be useful only if they are applied systematically. For a comprehensive technology of game-based educational activity such as project work, systematicity is generally an intrinsic organic property since it covers a significant part of the educational process, that is, it cannot be unsystematic, just as the educational process cannot be unsystematic.

All these characteristics are summarized in Table 3 which is a modification of the corresponding table from Herger's work[19] which was adapted to the goals of this study. The findings in the table demonstrate that the game-based technologies of educational activities

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[18] M. Herger, Enterprise gamification: engaging people by letting them have fun (Leipzig: CreateSpace Independent Publishing Platform, 2014).
[19] L. P. Varenina, "Geimifikatsiya v obrazovanii", Istoricheskaya i sotsialno-obrazovatelnaya mysl num 6-2 (2014): 314-317.

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used in foreign language courses at university fully comply with the general pedagogical requirements for gamification designed to improve the process of preparing students for future professional activities.

Comparison parameters	Regular games	Educational games (language games, dramatizations, social contacts)	Educational role-playing games	Educational business games, brainstorms, case studies, discussions, presentations, project work	Gamification	Professional work
Spontaneity	Yes	No	No	No	No	No
Rules	No/Yes	Yes	Yes	Yes	Yes	Yes
Goals	No/Yes	Yes	Yes	Yes	Yes	Yes
Structured	No/Yes	Yes	Yes	Yes	Yes	Yes
Real-life result (educational/ professional)	No	Yes	Yes	Yes	Yes	Yes
Systematicity	No	Yes	Yes	Yes	Yes	Yes

Table 3
The comparison of game-based technologies of educational activities in teaching foreign languages at university with regular games, general pedagogical gamification and professional activity

Regarding the use of information technologies for the implementation of all the gaming technologies of educational activities mentioned above, the long-term successful experience in using gaming technologies without the widespread involvement of information technologies indicates that, in the case under consideration, such technologies are not essential. These technologies are not strictly obligatory for teaching other subjects, and that is why Herger did not include them on the list of mandatory gamification parameters. At the same time, all the listed game-based technologies of educational activities can also be implemented using a computer and other electronic means of communication that allow downloading gaming applications, and this can significantly increase their efficiency.

For example, to efficiently conduct business games, especially continuous business games, brainstorms and discussions, case studies, presentations and project work, students need to accumulate a lot of information beforehand (especially when these types of educational activities have professional subject content). The best way to obtain such information is to search for it on the Internet on relevant foreign sites, that is, the online search should precede the implementation of these gaming technologies for educational activities and accompany it[20]. Practically all language games can be played using computer programs (for example, various types of crosswords), and a computer can also act as one of the interlocutors in the process of social contact realization, dramatization and even role-playing games. Finally, all the agreed games can be played online remotely in cases when, for example, two groups of students from different universities (based on a cooperation agreement between them) participate in a joint foreign language lesson which is conducted

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[20] P. Buckley y E. Doyle, "Individualising gamification: An investigation of the impact of learning styles and personality traits on the efficacy of gamification using a prediction market", Computers and Education num 106 (2017): 43-55.

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via the Internet. Moreover, one should remember to use multimedia tools to conduct student presentations, discussions, business games, etc.

Thus, although it is not obligatory to use information technologies in the technologies of gamification of educational activities in foreign language classes, they can be successfully applied and such application is increasingly becoming desirable and even necessary. That is, even in this aspect gamification in teaching foreign languages is not much different from gamification in teaching other courses at university.

The experts noted that most of the aforementioned gaming technologies for teaching foreign languages can be used in both linguistic and non-linguistic universities: social contacts, role-playing and business games, brainstorming, case studies, discussions, presentations, project work. At the same time, linguistic and linguistic sociocultural games and dramatizations have a limited scope at non-linguistic universities, primarily due to the lack of study hours. Moreover, professionally-oriented role-playing games are more suitable for non-linguistic humanities universities, since there the communication between a specialist and a non-specialist (for example, a psychologist with a client or a lawyer with a client) is the most common. The conflict of interest that is characteristic of all role-playing games is still present here but this is a conflict of interest between a non-specialist communication participant with the environment, and it is precisely in this conflict that the "specialist" participant tries to help. On the contrary, for technical, economic and environmental universities it is more advisable to use business games in which a specialist (specialists) usually communicates (communicate) with a specialist (specialists). For example, two engineers discuss a particular production problem, expressing different, often opposite, opinions (a conflict of opinion).

Conclusion

The result of the study is 1) the introduction of a clear list of game-based technologies of educational activities to use in foreign language training courses at university; 2) the establishment of technologies that are appropriate to be used both at non-linguistic and linguistic universities, and those that can only be used in one of the two types of universities mentioned; 3) the determination that the use of gaming technologies of educational activity in the process of foreign language training at university is complete fits into the general pedagogical methodology of introducing gamification as an innovative approach to developing modern higher education as a whole.

The prospects for further studies include 1) developing new technologies of educational activity to be used in learning foreign languages at university; 2) wide implementation of information technologies into the realization of these technologies of educational activity; 3) maximal distribution and improvement of methodological approaches to the structure of gamification-based language courses at university.

Generally, the results of the study confirmed the hypothesis that to increase the efficiency of foreign language learning, it is possible and necessary to gamify the process of teaching foreign languages at university without computers or with wide use of information technologies.

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