ЭЛЕМЕНТЫ ГЕЙМИФИКАЦИИ И ОНЛАЙН-РЕСУРСЫ В ОБУЧЕНИИ ЛЕКСИКЕ АНГЛИЙСКОГО ЯЗЫКА БУДУЩИХ ИНЖЕНЕРОВ

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Статья посвящена геймификации как одному из ведущих трендов во всех отраслях человеческой деятельности, в том числе и в образовании. Современный молодой специалист должен обладать сформированной иноязычной коммуникативной компетенцией, чтобы максимально эффективно выполнять профессиональные обязанности. Кроме того, владение иностранным языком способствует гармоничному развитию личности и дает базу для дальнейших достижений. Целью данной работы является определение понятия «геймификация» в образовательном дискурсе, выявление ее ключевых характеристик, а также отличий от понятия «игра». В практической части статьи авторы предприняли попытку определить эффективность применения геймификации и интернет-источников для обучения лексике английского языка студентов технических направлений подготовки. Кроме того, приводится список конкретных онлайн-ресурсов, которые могут быть использованы на занятиях. Данное исследование проводилось с использованием теоретических и практических методов. Теоретическими методами являются анализ Федерального государственного образовательного стандарта высшего образования и других нормативных документов, регламентирующих учебный процесс в вузе, а также обзор и систематизация теоретических и практических работ исследователей в данной области. Результаты практической части исследования были получены в ходе педагогического наблюдения, анкетирования, тестирования и эксперимента, а также в ходе фронтальной беседы и индивидуального интервью. Результаты исследования могут быть применены в преподавании английского языка студентам-бакалаврам всех технических направлений подготовки, в рамках освежающего курса для магистрантов неязыковых специальностей. Кроме того, следует отметить, что использование геймификации возможно как на аудиторных занятиях, так и в самостоятельной работе студентов.

Ключевые слова: геймификация, игра, профессиональная лексика, информационно-коммуникационные технологии, обучение английскому языку, общеязыковая лексика, будущие инженеры, экспериментальный процесс.

GAMIFICATION ELEMENTS AND ONLINE RESOURCES FOR TEACHING ENGLISH LEXICS TO FUTURE ENGINEERS AT TECHNICAL UNIVERSITY

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The paper is devoted to gamification as one of the leading trends in all branches of human activity, including education. A modern young professional should have a formed foreign language communicative competence to perform professional duties in the most effective way. In addition, knowledge of a foreign language contributes to the harmonious development of the individual and provides a basis for further achievements. The aim of this paper is to define the concept of «gamification» in educational discourse, to identify its key characteristics, as well as the differences from the concept of «game». In the practical part of the paper, the authors made an attempt to determine the effectiveness of gamification and online sources for teaching English vocabulary to engineering students. In addition, a list of specific online resources that can be used in the classroom is given. This research was carried out using theoretical and practical methods. The theoretical methods are the analysis of the Federal State Educational Standard of Higher Education and other regulatory documents, regulating the learning process at the university, as well as reviewing and systematizing the theoretical and practical works of researchers in this area. The results of the practical part of the research were obtained through pedagogical observation, questionnaires, testing and experiment, as well as through a frontal conversation and an individual interview. The research results can be applied in teaching English to bachelor students of all technical areas of training, as part of a refreshment course for undergraduates of non-linguistic specialties. In addition, it should be noted that the use of gamification is possible both in classroom lessons and in the independent work of students.

Keywords: gamification, game, professional lexis, information and communication technologies, English language teaching, General English vocabulary, future engineers, experimental process.

Introduction

The next stage in the active joining of Russian higher educational institutions to the international educational space is the development and approval of the federal state educational standard for higher education 3 ++ [1]. To meet this standard, universities must produce competitive professionals who are ready to perform professional duties within the framework of the new financial and economic paradigm. Therefore, a mandatory requirement for graduates is the presence of a formed universal competence, according to which a young specialist must be able to communicate in a foreign language both orally and in writing within the framework of his professional activity. However, the main obstacles hindering the fulfillment of this requirement, according to the authors of the paper, are the following factors:

– a limited number of academic hours for learning a foreign language in technical areas of training;
– low level of motivation of students;
– often insufficient technical equipment of classrooms (lack of the necessary number of personal computers for independent tasks, unstable Internet connection, lack of multimedia equipment for the demonstration of audio and video materials, etc.).

It can be argued that there is a close relationship between the second and third factors, since modern students are extremely active in using various electronic devices not only in everyday life, but also for educational activities. At the same time, traditional textbooks may seem outdated and boring to students. Thus, as observations have shown, the use of blended learning increases the level of motivation of students to learn a foreign language. That is why teachers of foreign languages are constantly searching for new, most effective methods, means and forms of learning, an example of which can be gamification.

1. Literature Review

Despite the fact that the idea of using game principles in teaching foreign languages is far from new, this topic does not lose its relevance. According to the observations of the authors of the paper, a significant part of the works is devoted to general didactic problems of gamification [2–5]. The works devoted to gamification as a way to strengthen the motivation of students to learn a foreign language deserve special mention [6–13].

The application of game principles to various areas of human activity that are not related to the game has a long history of development. In 1973, Ch. Coonradt, the founder of the consulting firm «The Game of Work», put forward the concept of a holiday organization at the workplace. In his opinion, the use of the game can significantly increase the motivation of employees, and therefore improve the situation of the company. However, the term «gamification» was introduced in 2002 by N. Pelling, a British programmer, writer and inventor. Later, the concept of gamification was used by the Canadian consultant G. Zichermann, Professor of the University of Bloomsburg K. Kapp [14], as well as Professor of the University of Pennsylvania K. Werbach, who posted his course under the same name on the world-famous Coursera portal [15]. Today, this term has a number of synonyms, which can be explained by the search for its most equivalent and adequate translation

into Russian. Thus, there exist terms such as «gamification», «gamization», «gaming» [16]. Moreover, there are variants that represent loan variants of the English language version: «igrofikatsija», «igraizatsija» [4]. In this study, we will use the term «gamification», as it is the most commonly used in the Russian-language research discourse.

The majority of scientists generally define gamification as the application of game principles and elements in contexts that are not related to the game: business, marketing, personnel management, media, and other areas of human activity [16–22].

What concerns the definition of gamification in pedagogics, there is a slightly greater variety of approaches. Some researchers define gamification more broadly, namely, as the use of game principles, approaches, and technologies in an educational context, which can be proved by the following definitions:

– «On the surface of gamification is the idea of using a game approach to make teaching and learning more entertaining. … Gamification is a way of influencing students» [23, p. 237–238].

– Gamification is «the integration of game elements, game technologies and game design into the learning process, which contributes to a qualitative change in the way the educational process is organized and leads to an increase in the level of motivation, involvement of students, activation of their attention and concentration in solving educational tasks» [5, p. 138].

Gamification is understood more narrowly in other research papers as the use of online games and other Internet resources with game elements in the process of studying a subject:

– «This technology is a means of integrating digital resources into the educational process» [24, p. 147].

– «The bottom line is that in the case of gamification the subject is actively involved in the learning process using computer gaming technology» [25, p. 158].

– «By 2010, the term «gamification» was considered in two research contexts: the development of educational computer games and a way to increase motivation to learn» [26, p. 120]. In the last definition, one of the most important characteristics of gamification is noted, which the majority of experts unanimously focus on: the means for increasing students' motivation.

The authors of this study are of the opinion that both approaches to understanding gamification are relevant and reasonable. The validity of this position is emphasized by the works of other researchers. Here are a few quotes:

– «So, in a *broad sense*, gamification is the use of online and offline *gaming technologies* in the learning process. ... In a narrow sense, gamification is understood as the *use of a computer environment* to create games» [27, p. 40].

– «Gamification is the application of approaches characteristic of *computer games* to *non-game processes* in order to increase student involvement in the solution of applied problems, as well as the use of game elements in practice in the areas of human existence that have nothing to do with games» [28, p. 56].

– «The essence of gamification is the application of *game* principles and elements, methods, techniques, approaches, *video games, computer games* for non-game tasks, types and areas of activity» [29, p. 211].

– «Gamification is associated, in particular, with an increase in the effectiveness of achieving non-gaming (including didactic) goals through the use of the

potential of *computer games*. ... Sometimes gamification is considered as the inclusion of *any kind of games* in the educational process» (emphasis in italics is ours - N.S., K.O.) [30, pp. 207, 208].

The understanding of gamification in a broad sense includes the use of role-playing and simulation games. However, they believe that gamification as the use of Internet technologies and resources is secondary to the broader understanding of the term under study. This means that the use of online learning resources is a preliminary stage in which specific language gaps are filled before moving on to more complex tasks in the form of a business or simulation game.

Both types of gamification include seven key components:

1. Interest. First of all, it is necessary to make stimulate students' interest in the upcoming activities.

2. Motivation. The emergence of interest increases the motivation to complete tasks.

3. Competition. In the process of learning activities based on game principles, there is a sense of healthy competition between the participants.

4. Individual development. A unique feature of gamification is that it gives each student the opportunity to fill in their personal knowledge gaps.

5. Achievements represent completed tasks.

6. Award can be presented both in the form of external attributes (badges, scores and other marks of excellence), and in the form of an internal satisfaction from the completed tasks, acquired new knowledge and skills.

7. Feedback. At the final stage of the gamified lesson, students and teachers sum up the results, exchange impressions and draw conclusions for the future.

Possible disadvantages of gamification:

1. If you overuse gamification in the classroom, the importance of acquiring new knowledge, skills and abilities can be underestimated.

2. Receiving awards can become the only learning objective.

3. There may be a demotivation effect: it becomes difficult for students to perceive complex and voluminous material in the traditional form of class management

4. The complexity of designing a lesson in a form of a game.

However, according to a number of researchers, gamification and game are not completely identical concepts, recognizing the validity of this statement; it is possible to characterize the relationship of game and gamification as general and particular [31]. Accordingly, within the framework of the game, the illusion of a new reality is created, existing according to its own laws and rules, while gamification uses only individual game elements (competition, a system of awards and incentives, and the opportunity to repeat an unsuccessful attempt to complete a task) [5, 26, 32]. These features determined the difference in goals: gamification is used for the successful organization of the educational process, whereas the game can be purely entertaining.

2. Materials and Methods

During the pilot study it has been found that engineering students of the 2nd year pay much attention to technical terminology not bearing in mind the General English vocabulary. It undermines all language activities especially writing and speaking. Consequently, the 2nd year students were taught general-linguistic vocabulary by using various Internet resources (e.g., for repeating the words for the topics

«My Flat», «Cities and Towns», «My family», «Our University», irregular verbs) during five months. The gamification elements make the standard course more interesting. For example, game can motivate students to do homework and solve tests, and if the topic is too complex, then simple examples with gamification will allow you to better understand and learn the material for the future. Therefore, when introducing gamification into training, the strength of mastering the educational material increases due to the involvement of the emotional centers of students with the elements of gamification. Game elements in training evoke a «competitive» spirit, which in turn increases the pace and quality of the educational process. At the same time, students are trained to interact in a team, as the performance of game tasks requires the distribution of roles and functions among students. The results of this experiment conclusively demonstrate the effectiveness of gamification for teaching of English vocabulary to technical students.

However, during the pedagogical observation, frontal conversation and individual interview, it was found that a significant part of the students are not able to cope with the above exercises at the proper level. The following gaps in students' knowledge were identified, and we selected online gaming resources for removing these difficulties (Table 1):

Table 1

Knowledge gaps and online resources to fill them in

Type of knowledge gap	Number of students with this gap, %	Internet-resource
Inabilty to name cardinal and ordinal numbers	52	AudioEnglish, Eng5
Difficulty in naming the dates	34	Eng5.ru, Learn English Best
Irregular verbs ignorance	48	AudioEnglish, Crazylink, EnglishTestStore, Poliglot16
Ignorance of basic general English vocabulary	22	Duolingo, English Dom, EnglishTest-Store, Freerice, A guide to learning English, Learn English Best, Lim English, Lingualeo, Poliglot16, Puzzle English

3. Research Results

This study, which was aimed at evaluating the success of the use of gamification in teaching general English vocabulary to students of a technical university (construction, architectural and design faculties), convincingly demonstrated the effectiveness of this technology. The gamification elements make the standard course more interesting. For example, game elements can motivate students to do homework and do tests, and if the topic is too complex, then simple examples with gamification will allow you to understand and learn the material better in the future. Therefore, when introducing gamification into training, the strength of mastering the educational material increases due to the involvement of the emotional centers of students with the elements of gamification. Game elements evoke a «competitive» spirit, which in turn improves the quality of the educational process. At the same time, students are trained in team interaction, as the game tasks require the distribution of roles

and functions among students. The results of the study can be applied in teaching English to undergraduate students of all engineering specialties, as part of a course for undergraduates of non-linguistic specialties. In addition, it should be noted that the use of gamification is possible both in the classroom and in the independent work of students.

4. Discussion and conclusion

The research results can be applied in teaching English to bachelor students of all technical areas of training, as part of a refreshment course for undergraduates of non-linguistic specialties. In addition, it should be noted that the use of gamification is possible both in classroom lessons and in the independent work of students.

We would like to recommend other useful gamification sites that can be applicable: 1) https://unity/com/ru (the resource, named "Unity" for creating educational games); 2) gamebuilder, named "Taleblazer" — https://taleblazer.org. The application of these web-tools will be a further continuation of our research, dedicated to ELT in a technical university.

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