

THE POTENTIAL OF USING VIDEO GAMES IN THE EDUCATIONAL ACTIVITIES OF THE UNIVERSITY

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Abstract: The relevance of the article is due to the necessity to respond to the challenges posed by the modern mediatized reality of the education system. The purpose of the article is to identify the prospects for the use of video game products in educational activities, as part of the gamification of the educational process. To achieve this goal, the authors propose to turn to the analysis of modern video games, which involves the use of narratological and ludological approaches. In the process of researching and analyzing the games "Physicus" and "Chemicus", "This war of mine", as well as "Crusader Kings 2", the authors come to the conclusion that each of these examples has potential for use in the educational process at the university.

Keywords: gamification, video games, education, gameplay, competencies, ludology.

1 Introduction

The world expert community has long recognized the existing system of higher education as not meeting the requirements of the time, rapidly becoming obsolete in its forms and content (Veliyev, 2015; Kochergin, 2009; Lakhina, 2014; Khairullin, 2020). Statements of eminent modern teachers, both theorists and practitioners, related to the need to modernize the field of education have been repeatedly recorded (Ilyin, 2020). Today, almost every element of school and university education is criticized: the organization of the physical space of the school in general and each class in particular, strict rationing of attendance in a fixed group of students, stratification of groups of students (Stolbov, 2015), industriality, which manifests itself in the organization of education as a streaming production, without taking into account individual needs, flexible trajectory of the educational process as a whole (Kalney, 2016). The necessity and relevance of such criticism becomes obvious if we turn to comparing the attractiveness of the types of activities potentially available to students with the attractiveness of the educational process itself, especially at the university. Education as a student's activity in this comparison remains far behind, the whole system works against the interest in education arising in the student, since the modern techno-recreational sphere offers a lot of pastime options that seem much more tempting than educational activities.

It is no secret that a number of authors have repeatedly expressed concern that video games and students' passion for them pull the motivational resources of the latter from the learning process (Porotova & Afanasyeva, 2019; Chumpurova, 2014). Indeed, it is not difficult to notice that the student will plunge into the game space with a great desire and will make efforts to learn how to play a new game for him, then he will perform this or that educational task. At the same time, it is also worth noting an important fact: sometimes learning to play something at a fairly good level can be no less difficult than mastering a learning task. And, nevertheless, with a comparable level of complexity of tasks, the student prefers one activity to another, it is fair to ask the question: why is this so?

Video games as a special type of media have specific properties of transmitting and broadcasting information (Bolotnova & Klyuev, 2019). When comparing alternative types of media, it is possible to discover certain advantages of video games in the context of human involvement. To begin with, let's turn to the classical text version of the transmission and broadcasting of information from a medial point of view. The text requires a

special effort from the reader to immerse and engage in the process, since the reading procedure itself requires a high level of energy consumption, concentration of attention, and, in addition to it, the educational material itself is difficult to master, obtaining and working with information in this way is difficult and requires effort. Deciphering linguistic constructions, restoring logical and hierarchical connections of ideas and their sequences is a constant strenuous work of the brain, intentionally aimed at the effort to retain attention. Of course, the text can be combined with different forms of visualization of the material: visual illustrations, infographics, diagrams. Such techniques increase the degree of learning the material. But, it is worth noting that this kind of tricks is precisely why they are productive in the context of increasing the efficiency of learning the material, that the medial text format itself is complex and time-consuming to perceive.

Nevertheless, the educational system can already turn for help to the field of activity, which, as we saw earlier, perceived as hostile and even opposing itself. In this context, it becomes relevant to analyze the possibilities of using video game elements in educational activities and in the future their inclusion in the educational process, based on the narratological and ludological analysis of the examples presented. In our case, commercial video games will be considered, the focus of which at first glance is far from educational.

2 Literature Review

At the present stage, the issue of the qualitative improvement of the educational process is raised by many researchers. In particular, the topic of gamification of the educational process, studied on the basis of Minin University by Babaeva A.V., Klyuev A.A. (2017), is also relevant. In the course of this study, the fundamental mechanisms of the relationship between the types of gaming activity and their applicability in gamification practices in the framework of working with human resources in order to organize and improve labor efficiency were identified.

Other works explore the relationship between education and gamification practices (Akchelov & Galanina, 2019; Bijieva & Urusova, 2020; Bogost, 2015; Gimelstein et al., 2020; Zvonareva & Kupalov, 2021; Ponachugin, 2020; Vagin et al., 2020). For example, Bijieva S.H., Urusova F.A.-A. (2020) focus on the prospects and risks associated with gamification. Bogost Ya. (2015) criticizes the gamification process. Zvonareva N. A., Kupalov G. S. (2021) attempt to determine the positive and negative effect of the introduction of gamification practices into the already established system of higher education, working out the theoretical and methodological foundations for combining these processes. Indeed, as Bogost Ya. (2011) rightly point out in his work "Gamification is bullshit", presented as a commercial service, gamified products are a "soap bubble" without content. Such criticism of gamification is really appropriate to the extent that the gamified product itself is the fruit of the consulting services market, generated without a proper understanding of the functioning of the processes associated with it, a fundamental understanding of the role of gamification in the system of HR services.

Another group of researchers focuses on the analysis of specific gamification practices and the success of their application in education, for example, this is done by Akchelov E.O., Galanina E.V. (2019). The use of gamification elements in economic education is considered by Gimelstein E.A., Godvan D. F., Stetskaya D. V. (2020). The use of auxiliary visualization and gamification tools in the framework of subject training is studied by Klyuev A.A. and Klyueva E.N. (2021), Ponachugin A.V. (2020). The practice of gamification is perceived as an auxiliary practice in the educational process during distance education due to the consequences of the coronavirus pandemic.

In addition, the discussion of ways to introduce gamification practices into scientific research, considered by Bykov E., remains active (2015). It should also be noted that gamification practices themselves still remain under sharp criticism regarding their effectiveness and justification of implementation. Attempts are being made to revise the declared successes in this area, both in Russia (Salin, 2015) and abroad (Bogost, 2011).

The issues of students' formation of the meaning of life and the role of video games in this process were investigated by Ermakov S.A. (Ermakov et al., 2019, 2020), Nemova O.A. (Nemova et al., 2021). Researchers, in particular, express serious concerns about the loss of humanistic educational potential as a result of the replacement by video games of the traditional educational process with the direct participation of the teacher.

3 Research Methodological Framework

The purpose of the study is to identify the prospects and possibilities of using video game products in the educational activities of the university, as part of the gamification of the educational process.

Research objectives are:

1. to identify and characterize video games for further research;
2. to carry out a narratological and ludological analysis of the selected video games, which enables to identify potential prospects for their use in the educational process of the university.

The methodological basis consists of the approaches of the ludological and narratological analysis of video games. They have proven to be successful and very common in the study of video games and are based on the ideas of classical game studies theorists Aarseth E. (1997) (narratological approach) and Yuul J. (2004, 2008) (ludological approach). The basis of the narratological approach is the analysis of video games from the perspective of narrative and plot research. So, narratologists mainly turn to how exactly events develop in the game world, what is the figurative and symbolic connection of elements, whether the plot of the game is a consistent narrative and what values and ideas this narrative conveys. In the ludological approach, the focus of attention shifts to the analysis of those game mechanics that make up the activity interaction of the player and the game world, which mechanisms and rules guide the process of gaming activity, how the idea of the relationship between actions and consequences is formed. Within the framework of gamification, it is necessary to take into account both levels of understanding of processes, since the player, on the one hand, must be involved in the action in the game space at the level of the narrative (given conditions), and, on the other hand, understand and adequately perceive the specifics of interaction with the game world. Correlated together, the results of a comprehensive analysis enable us to identify those elements embedded in video games that can potentially enable the use of video game products as gamification practices within the educational process at the university.

4 Results and Discussion

Initially, three sets of games were selected to identify potential tools suitable for use in the educational process. At the same time, we relied on a number of criteria: accessibility, comprehensibility for a new player, low system requirements, the criterion of genre variability and the availability of material in games that can be used for illustration and in practical work in a number of fairly common disciplines in the field of study 44.03.01 "Pedagogical education", 44.03.05 "Pedagogical education with two training profiles", 47.03.01 "Philosophy". Thus, the study presents an analysis of games of the interactive quest genre ("Physicus" and "Chemicus"), a survival strategy ("This war of mine"), a real-time global strategy in the medieval world ("Crusader kings 2"). Video games belong to different genres and different periods of creation (from the early 2000s to those currently supported by the developer), this choice was

made in order to show the possibility and prospect of the potential of using video game products of different genres and created at different times in the university educational process.

Furthermore, we turn to the sequential analysis of each presented video game product. The first and closest example to the essence of the educational process is a whole series of games released in the 2000s "Physicus" and "Chemicus", developed by the studio "Ruske and Puhretmaier Edutainment GmbH" (Germany). Despite the fact that the games were released a long time ago, they still remain relevant and in demand. The essence of the gameplay revolves around a detective story, during which the player will not only move through the twists and turns of this plot, but also solve quite non-trivial chemical and physical problems. Thus, from the point of view of narratology, an important condition is fulfilled, the player plunges into the world of the game and is carried away by the plot unfolding there. The tasks themselves are woven into the gameplay in such a way that without solving them, it is impossible to advance along the plot of the game. In addition, reference materials are included in the game, so that without interrupting the gameplay it is possible to turn to the theoretical basis of physical and chemical processes. In this aspect, the ludological potential of these video games is revealed, since game mechanics work in such a way that without solving the problem, a participant who is passionate about the plot and the mystery of the game cannot move further in his journey through the game world without solving the task assigned to him.

Thus, the player, if necessary, should turn to the study of reference materials, master a certain set of theoretical and practical skills. The game establishes a connection between theory and practice and there is a criterion for evaluating the success of mastering the material, and also, which is an essential factor, there is an element of encouragement through the player's promotion along the storyline.

The built relationship between available and improvised reference materials, tasks formed on the basis of real physical and chemical processes, as well as the game world, which serves as an element of involvement and interest, create a sense of immersion of the student / player in this software product. This interrelation of the game world (detective story, riddles) and the need to solve physical or chemical problems to move forward makes this example as suitable as possible for use in the subject training of students in the field of study 44.03.05 "Pedagogical education with two training profiles" "Mathematics and physics", "Biology and chemistry", in the first-year disciplines "Physics", "Chemistry", "Concepts of modern natural science", as well as for a wider group of areas, including humanities, for example 44.03.01 "Pedagogical education", 44.03.05 "Pedagogical education with two training profiles", 47.03.01 "Philosophy".

Another example is the game "This war of mine" from the studio "11 bit studios" (Germany), released in 2014. The narrative and entourage of the game does not allow at first glance to assume that its gameplay, semantic content and game mechanics can be used as part of the educational process. But potentially such an opportunity is present because it is necessary to study:

1. ethics and decision-making, self-analysis and analysis of the situation of war and crisis in the framework of the study of social studies, ethics and axiology courses at the university in the field of study 47.03.01 "Philosophy";
2. fundamentals of management within limited resources, economic features of crisis situations, the ability to build the logic of provision, distribution and consumption, which can be auxiliary material in the framework of mastering the courses "Fundamentals of economics" in the field of study 44.03.01 "Pedagogical education", 44.03.05 "Pedagogical education with two training profiles", 47.03.01 "Philosophy".

Presenting at the level of mechanics a simulation of economic management of extraction and distribution of resources in conditions of their radical limitations, at the level of narrative

and figurative-symbolic units, the game demonstrates a strong didactic potential. The player needs to control, manage and distribute the functions of participants for a group of people who have remained in the occupied city and are unable to get out of it. The game mechanics consists of two main phases: day and night, which are appropriately visually decorated. During the day, the player distributes the members of the group to work related to the arrangement of the shelter, the production of necessary tools, medicines or weapons from available materials, contacts with minor characters who come to the player's shelter. At night, the player will have to control one or more characters while they make a sortie from the shelter to the outer city to search for additional resources. In the process of managing a group, the player has to face a number of problems: lack of food, medicines, lowering the air temperature, as well as groups of armed looters. During the gameplay, the player will repeatedly need to make difficult moral and ethical decisions. Thus, being involved in the game and feeling his involvement (at the narrative level) with the characters of the game, the player will work to ensure the survival of a group of game characters, thereby mastering subject skills from the course "Fundamentals of economics" such as: planning and setting tasks, distribution of benefits taking into account the needs of wards, distribution of functions in the team and practicing theoretical knowledge from the courses "Ethics" and "Axiology" in practice in virtual interaction, in particular: making ethically controversial decisions to ensure the survival of the group, analyzing value orientations and factors influencing their change in crisis situations, encountering the situation of war and people's experience. On the one hand, this will require the activation of soft skills: stress management, time management, self-reflection, and, on the other hand, the experience of virtual immersion in the game world can be a source of material for developing students' worldview positions within the disciplines of "Ethics", "Axiology" in the field of study 47.03.01 "Philosophy".

The third example is a dynamic real-time strategy game from Paradox Development Studio (Sweden) "Crusade Kings 2" (hereinafter CK2), released in 2010. It is worth noting that in the CK2 example, which we are considering, the number of possible player interactions with the game world is quite strictly limited. First of all, the fact that the player has the ability to directly control the characters, but interacts with them at some abstract level, not covered by the interface to the level of transparency, that is, in such a way that each of his actions is accompanied by the need to give an order by pressing a special button. This control logic is an alternative to the tendency for the interface to disappear from the player's field of view and allows you to pay less attention to the logic of interaction between the acting characters of the game and the player himself. We can clearly count, define and fix the commands that the player prescribes for execution. In other words, the set of possible actions is limited, although it is quite wide up to 100 different actions, taking into account all possible official additions. Such a number of interaction options, on the one hand, demonstrates that the success of the game is not always directly related to its fundamental openness and the fact that a small instrumental sample can be compensated by a specific layout.

At the level of mechanics, the ludological slice of the game, we can observe the direct exercise of power by the player through a directive to commit an action: to imprison, execute, declare war, make peace, etc. We see that the acting power actor is assigned the possibility of carrying out a certain set of operations that can be implemented by him. The set of these operations can be different depending on the factors possessed by the player's character, among such factors we can distinguish: age, gender, social status, national specifics or the political structure of the state, etc.

In addition to the set of actions itself, which in itself tells us some ideas about power relations and the specifics of power communication, it is necessary to pay attention to the complexity / simplicity of performing an action and the consequences that this action may entail. Every action of the player triggers the inclusion in the gameplay of a new set of factors that affect the

dynamics of the game, these factors further affect what result the player will eventually come to, the combination of some factors can lead to the end of the game. The complexity/simplicity of decision-making largely depends on two types of factors: character characteristics and external factors of the world. Character characteristics are a system of traits or character qualities, positive (modesty, genius, courage) and negative (greed, mental retardation, illness). These qualities themselves can be innate, acquired in the process of growing up, acquired in adulthood, the results of events or chance. Since the player's goal is to create the most powerful and stable state in the conditions of medieval Europe and Asia, the player often faces the question of inheriting titles, since the player always continues to play as the ruler who ascended the throne after the death of the previous one. So if there are several contenders for the title, the player can bypass the inheritance system by eliminating an incapable or weak heir, clearing the way for a stronger contender. In this case, the mechanics themselves suggest how a domineering action should be performed and how an obvious moral crime can lead to a positive result for the entire gameplay and the process of power simulation as a whole.

The narratological analysis of the game leads us to understanding that the plot of the game world, its very narrative, completely depends on the player and the actions that he will take. Nevertheless, the element of chance associated with the action of third-party in-game actors is not excluded. In the narratological aspect, the player himself becomes the creator of the plot and the story, without being prescribed by rigid limits and restrictions within the game, can unfold in different ways. This allows to see how even minor decisions made by the player affect the change of the entire game world, which, we recall, is a model of the historical medieval world.

From a ludological point of view, we observe how the price of making a decision and performing an action by a player increases. Each of his decisions causes a whole host of changes that entail the emergence of new opportunities and difficulties. At the level of psychology, the player is faced with a simulator of government in a certain historical era. Such a simulation can be interpreted in many ways as a specific virtual practice of reconstruction (albeit in a simplified model) of the life of a medieval state, and the game provides opportunities for the implementation of different scenarios for the development of this reconstruction and their analysis after the game, discussions in the framework of practical classes at the university in the field of study 44.03.05 "Pedagogical education with two training profiles" "History and social studies", "History and law".

Thus, through penetration and involvement in the gaming experience, the student (player) can master a number of necessary competencies prescribed by the work programs of disciplines, in particular, universal competence-5, which involves the formation of the ability to perceive the intercultural diversity of society in socio-historical, ethical and philosophical contexts, provided for in the curricula of the field of study 44.03.05 "Pedagogical education with two training profiles" in the profile "History and social studies", "History and law". Firstly, immersion in the process of the game will enable to form an idea of the historical process as a set of development of many interrelated political and state entities; secondly, it will develop an understanding of the factors influencing decision-making and the potential complexity of such decisions. These skills can be useful for visual, practical mastering of the disciplines of the historical cycle in the field of study 44.03.05 "Pedagogical education with two training profiles" in the profiles "History and social studies" and "History and law" such as "World historical process", "Medieval civilizations of the West and East".

5 Conclusion

The review and identification of the potential of video games as a tool for gamification of the educational process at the university indicated in the goals and objectives of this study showed that each of the presented examples of video games can be implemented in the practice of the educational process. At the same time, the internal content of video games and their device

at the mechanic level can serve as additional illustrative material. Video games, having recreational potential, can also become a potential tool for additional involvement of students in educational activities, combining elements of entertainment and at the same time studying and illustrating various kinds of educational material. Special attention should be paid to the process of integrating such gamification practices with the involvement of video games in the context of the educational process, which requires the coordination of curricula, academic programs of disciplines, understanding the logic of their implementation in the system of teaching the discipline.

Nevertheless, it should be borne in mind that, firstly, gamification requires individual "tuning" and preliminary analysis, otherwise its elements will remain unviable; secondly, many video games contain constructive potential that can be used to attract and involve students in the educational process; thirdly, the introduction and testing of gamification practices requires time and increased expert attention in matters of evaluating their efficiency.

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