# University as a Game without Rules (New Views on the Process of Building Higher Education) / Университет как игра без правил (новые взгляды на процесс построения высшего образования)
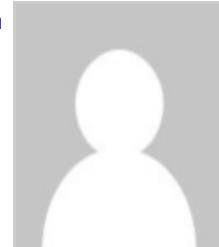
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**Аннотация:** Современное высшее образование остро нуждается в новых рабочих инструментах и процессах его реализации. Структуру вовлеченности студентов в образовательную деятельность также необходимо выстраивать принципиально новым способом. Этим и обусловлена актуальность данного исследования. В ходе анализа проведенного в исследовании было обнаружено, что университет содержит все основные элементы многопользовательской игры. Педагогические дизайнеры смогут еще лучше организовывать вовлечение студентов в процесс обучения, если посмотрят на него как на игру. Однако в игре присутствует недостаток, связанный с тем, что игровой симулятор не может предвидеть будущее. В связи с этим цель нашего исследования состоит в попытке устранения выявленного недостатка. В статье рассматривается структура игры, а также основанный на этой концепции процесс построения новой модели университета, способной отвечать на вызовы времени. Идеальный современный университет как персонализированная многопользовательская

игра и является в данном исследовании наиболее эффективной моделью. В ней выстраиваются коммуникации между игроком (обучаемым) и игрой, а помогает в этом использование искусственного интеллекта (ИИ). Данное взаимодействие между ними способно приводить к постоянному изменению ситуации, а непредсказуемость реакций искусственного интеллекта вероятно поможет решить задачу отсутствия заранее продуманных разработчиками ситуаций и их разрешения.

**Ключевые слова:**

современная модель университета, многопользовательская игра, педагогический дизайн, переносимые навыки, геймдизайн, компетенции, искусственный интеллект, твёрдые навыки, мягкие навыки, образовательный стандарт

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### Introduction

Is it possible to describe a trained person as one who, having as their goal the solution of a given task, chooses from the whole variety of actions and tools only those that will serve to achieve this goal? In other words, a trained person makes only the right decisions at every stage of their work. For example, in the case of a study, they correctly formulate a hypothesis, choose a method, collect data, analyze it, and make the right conclusion. The more adequate these solutions are, the more we, outside observers, admire this person's skill or intelligence. Moreover, solving problems, as a rule, requires not one action but a chain of actions. That is, by choosing one thing and attaching a second to it, a trained person is forced to choose a third, and so on, until the whole chain is connected into a single whole.

Thus, a trained person can decompose their goal into a number of tasks and carry out the process of finding the right solutions to these tasks from the beginning to the very end. Accordingly, an untrained person is someone who does not even have an idea of how to approach the problem.

So, taking the ability to create chains of the only correct actions in the correct sequence as a criterion of learning in this reasoning, we can imagine the ideal learning process as a kind of algorithm for fixing the decision-making process. This algorithm will look like a simulator that guides the learner to make the right choice. After all, if learning is the skill of correctly solving a problem within a subject area, then the learning process can easily be reduced to training and developing a skill in the form of a simulator. In the modern world, this mechanical process is easily amenable to algorithms and automation, even without the participation of a live instructor. This is how ideal online courses are built these days.

It may seem that such a method is good only for the formation of so-called "hard skills": programming, the ability to calculate budgets, or writing projects. "Soft skills" have more to do with education and require completely different approaches. However, if a person has a well-developed imagination, then the probability of transforming some skills into others becomes possible. We are talking about the fact that a person with imagination, having learned at least something, can learn everything. And how do you develop imagination? Does reading thousands of pages of scientific works and fiction, acting in the theater, drawing, or other creative endeavors help this? A little of everything?

In our opinion, an attempt to negotiate with unpredictable machine intelligence will help solve the problem of developing imagination. With it, the so-called transferable skills make the learner more flexible to constant changes. Therefore, if we imagine an ideal university in the form of a large simulator in which the whole of society will be recreated in miniature, then the university will be an urban environment where all public institutions function. By enrolling in such a university, a student will have to make a career no less. Each academic discipline will represent a certain activity in which it is necessary to succeed. The student's progress is controlled by the system, which awards points and bonuses for achievements in their work and writes them off for mistakes, changing the game reality depending on the student's decisions. This is very similar to the mechanics of the game SimCity[1], in which every player's decision has consequences for the whole city[2], and the player has to decide who can be allowed into the city and who is too suspicious and even worthy of arrest, based only on the documents entering and a few tools checks available to them.

Thus, we come to the conclusion that the university can be built according to the principles of the game and ask the question: is it possible to look at a modern university as a game? From the learner's point of view, all the elements of the game are present. There are levels—courses—to move through which it is necessary to successfully complete quests—disciplines filled with various tasks. There is a victory condition—the need to gain a certain number of credits in four years. If the student fails, then Game Over, and they will have to start the whole game again or go through the failed quest again. Obviously, if the game designers have done their job well, then the players should like the game. Why do we constantly hear negative feedback from players? This is probably because something is wrong with the mechanics of the game, and it's high time university administrations undergo advanced training in game design and not engage in improving the FSOs with pluses.

But why don't the students treat learning as a game? Probably because it does not take into account certain human universal truths. A person almost always plays with great pleasure but learns with much less. Despite this, not every game released on the market becomes popular—the lion's share goes to the trash, never reaching release. Game designers are constantly honing game mechanics to find the strings on which you need to play music to make the game popular. The human need for socialization is chosen as one of them.

From this point of view, the "gaming university" can be much better than any hitherto known game. Only on the basis of the university is there an opportunity to create a real activity environment around the student—a copy of society into which the student can immerse themself much more due to the natural immersiveness of reality. By recreating various social situations, we can stimulate the right decisions and "punish" for making the wrong ones. It is evident that we can teach almost anyone in this way, and the more our activity environment is closer to the real one, the more trained the student will become.

Imagine that there is a university in the form of an ideal game in which millions of people are absorbed. What does such a game teach? Obviously, the scripts are written based on real-life cases and technological situations, passing through which the player learns how to behave. However, in the future, they will most likely never face these cases. What should I do then? Develop quests so that they describe all possible situations as much as possible. It's probably likely. But what if we write a script that can be so adaptive that, when interacting with the learner, it determines the future? That is, it will look different from a once-configured mechanical simulator that reinforces mechanical skills. It will be a "living"

organism in which conservatism and determinism are combined with constant change. In fact, the university will be a simulator as a "safe" copy of reality. However, it is not a copy that freezes the 17th century in its structure but one that seeks to guess the 22nd century.

So, during the analysis, we found that the university contains all the elements of a game. Based on this, we conclude that pedagogical designers will be able to better organize the involvement of students in the learning process if they look at it as a game, which is why this study is **relevant**. However, there is a drawback in the game because the simulator cannot foresee the future, so the **purpose** of our research is to find a way to eliminate the identified drawback.

**A game without rules**

If Steve Jobs and Bill Gates were good students, there is a high probability that they would not have been able to change the future. However, once they got to university, they did not take on the knowledge that the university gave them. Rather, on the contrary, opposing their ideas of what the university provides, they created their products in this opposition and created innovations that needed to be made more familiar to the university. That is, for a university to be a center for the development of society, it does not have to be a center of expertise in all areas of human activity and teach this. It is enough for the university to create an infrastructure in which anyone can develop their intentions to such an extent as to formalize them into a project or even create a prototype. Obviously, only some of these ideas and prototypes can be breakthroughs. Only a small part of what has been created can really change the world. However, these few success stories will cover more than all the costs of creating hundreds of non-working projects.

More than ever, modern universities are faced with the question of whether to repeatedly dig through old knowledge to find an answer to how the future will be arranged or to teach students who will change the world by inventing new technologies rather than reproducing old ones.

Understanding games as an educational process, we wonder how to create game mechanics that do not rely on existing realities and force the student to act according to the patterns of the past but, on the contrary, create new rules during interaction with players. Here, we see several possible moves.

The first variant of solving the problem assumes that the game's strategy combines a set of other strategies. However, although this increases variability, it does not save the system from the fact that the developer still predetermines all strategies. We are more interested in such options when there are no initial rules, and only when interacting with the learner (player) do they begin to form.

Imagine an empty white room in which nothing happens until the player brings something there on their own. Depending on what they bring, the room randomly materializes other items, say, red cubes. The player may not pay attention to them or, on the contrary, do something with them. Their actions in the room are constantly changing. So, time after time, the room and the students build communication and have a language in which they communicate.

It may seem that this abstract model is far from what is happening at universities today. However, in our opinion, a student enters a modern university exactly as in a white room where everything is unknown to them: they do not know the rules and do not understand the language in which they are spoken. The challenges they face at university right after

school are terra incognita situations, especially if the liberal arts system with a large number of elective courses is already implemented at the university, where the student needs to choose the unknown. It is unknown what to weed out.

In our opinion, it is necessary not to eliminate this disadvantage, for example, by repeatedly explaining to students why they need this or that course, but on the contrary, to strengthen this effect by introducing courses without content, where students themselves will be able to create the rules and content of the discipline, and not in the brainstorming system at the beginning of the semester, but in the course of the course. For example, we start doing visual communication, then switch to the Stanislavsky system [3], then switch to Bauhaus [4], and finish with a project written in Scratch [5]. If we initially create a course that covers all these areas and imposes it on the student's consciousness, nothing new or innovative will arise. However, as soon as the same content is born in the process of free creativity, the student's consciousness begins to treat it as something particularly valuable, and here, we can hope for the emergence of innovation. That is, if the student, being in the process of freely searching for the passage of the game level, would try various combinations of different disciplines and knowledge and, at some point, would be able to pass this level, they would feel that there is something more behind their findings than work for evaluation. They would be more immersed in the game.

Is it possible to imagine the learning process as an attempt by the teacher to tell the student something in a language that the student does not understand? At the same time, the student hears familiar words, but the teacher deliberately rearranged all the words in the sentences so nothing is clear. However, it still seems to the student that in this strange manner of the teacher, there is some mysterious principle of composing words, and they need to understand it. It is possible to imagine that the student finds themself in a game, the purpose of which is to decipher the teacher's messages.

Can the student decipher their messages without the teacher's prompting? If the teacher starts giving hints, what language should they use? The learner's language? If it switches to the learner's language, does it change the language being studied? After all, the false idea that the meaning of the studied word can be transmitted using its language can be fixed in the learner's mind. Why do I need to remember something new? Or, after all, as soon as the teacher switches to the learner's language, they embark on the path of innovation, and together with a group of trainees, they jointly begin to create new things? To synthesize what is already known by questioning ignorance, is it possible to perceive a collision with the unknown as a challenge to innovation?

Imagine a situation where a trainee is faced with machine intelligence and needs to establish contact and solve a problem. At the same time, the language you need to communicate is unknown to both. That is, in the process of solving the problem, machine and natural intelligence must establish contact and begin to exchange information. Such a task seems very promising for the development of students' creative abilities. By teaching, they will learn by themselves.

Let's imagine the trainee's consciousness as a player's consciousness completely immersed in the game through its interface. A legitimate question arises: where do they travel? By answering this question, we will get an answer to what an ideal educational course might look like that will capture the learner's consciousness and gameplay. However, if we look at the variety of interfaces of successful games, we will quickly find that the screens look so different. The rules of the games are so different that it is impossible to generalize them to a set of universal laws. It is evident that with the help of the screen, the player travels

inside their consciousness. Here, it is necessary to analyze that there is a game at its very roots. Our task is even more complicated: to create games that do not have clear rules. From our experience in the gaming industry, we know that players like the presence of clear, specific rules but, at the same time, the presence of many possible plot developments. In our case, as we have repeatedly written about it, determinism cannot lead to innovation, and therefore, we need to look for complete openness.

To find a solution, let us turn to Ludwig Wittgenstein's theory of language games [6]. According to Wittgenstein, if we assume that language is a game, then the rules of the game are set by the language itself in its existence: sentence by sentence, language acts constitute new rules and exist within them. The meaning of what is said, or even of the action that must be carried out due to this act, can be understood only from the language act itself—what is said in a specific situation. The same speech act in a different situation will require a different action.

Is it possible to imagine any modern game that would adapt the rules as the game progresses? I don't think so yet. But in language, it is already possible. A person can speak seriously and utter a joke; ultimately, unexpectedly, the audience easily perceives that. People have existed in the language for a long time, coping with situations without only the right solutions and transparent rules. We believe it is worth looking for ways to build a game without rules for this phenomenon.

Let's make a reservation that there are still rules in the "game without rules." But they must exist for some time during the game and can be wholly or partially changed in another act. For example, if today the task is to build a tower, then tomorrow it may change: for example, to attach a balcony to the tower or, conversely, to destroy the tower. And every time, it should look highly logical and natural.

So, considering that different game mechanics and interfaces force a person to immerse themselves in their consciousness, we mean that the game touches some strings of their soul. For example, how a person lives in a language: constantly solving language problems, defining their rules at the moment, and what awaits them in a second.

Let's assume that the possession of a knowledge system represents the possession of a language. That is, each subject area is essentially a language. It has its own laws of composing words from letters and sentences from words and endowing sentences with meanings within the subject area. For example, how a mathematician solves a problem first formulates it using mathematics and does not necessarily only use formulas. They will also use one of the generally accepted languages but in a rather specific way. Next, they will begin to solve this problem using the rules of mathematics, and then they will come to conclusions. As far as the means of mathematics are used correctly, they will express their ideas clearly and correctly to other mathematicians. Colleagues may nod approvingly and begin to write an answer in the language of mathematics. If all their "correspondence" gets to the professor of history, they will not understand anything if they do not speak this language. At the same time, the analogy of knowledge possession as language proficiency can be applied not only to such abstract disciplines as mathematics or philosophy. Programming, architecture, or construction require expressing ideas in extremely strict forms, such as drawing languages or regulations. Well, to speak out, you need to know them as well as the language.

This analogy allows us to draw another parallel: as you know, the following learning outcomes have been fixed in Russian education: knowledge, skill, and mastery. That is, if

we assume that the knowledge system is a language, then the "Know" level is a situation where the learner knows the words of the language. The "Be able" level is when they can understand the meaning of sentences made up of well–known words. The "Own" level is when the student can independently compose new sentences from these words.

The language as a system is also good because the number of possible combinations of letters is immeasurable, but only a negligible part of these combinations is used. The number of word combinations is also huge, but a small fraction of the possible ones remains significant. The degree of language learning is the development of the ability to choose one letter and attach it to another, a third, and so on so that the result is an existing word. This is also the case with the compilation of sentences from words. Having taken one word, we are immediately doomed to weed out millions of different possibilities in choosing the second word, especially the third and fourth. Teachers strive to teach a person to "own" a language the way they previously owned it. Build those words that were known before them. Make only those proposals that the classics did.

But where is the innovation, then? It is in trying other combinations. That is, a game without rules aims to create your own language based on an existing one. And if we imagine the learning process as continuous, we are constantly coming up with a new language or developing one that we already spoke yesterday.

The ideal modern university is presented to us as a personalized multiplayer game in which the game mechanics from one console to another are entirely different: entering the game again, the player will never be able to get into the same atmosphere because such a university is not one student, but everything at once, and each has its own language that affects the languages of the others. Playing this game, a student learns how to attach another thing to one thing properly and simultaneously creates new game mechanics that change the rules in the whole game. Then, it turns out that the maximum possible usefulness or gain of each will depend on how much the player can agree on changes in the game strategies of other participants. Thus, whatever game we choose as the basis of the university, in any case, will be similar to a multiplayer one.

How can this be achieved? We see the solution in establishing communication between the player (learner) and the game based on artificial intelligence (AI). Constant interaction between them will lead to continuous change in the situation, and the unpredictability of AI reactions will help solve the problem of developers not thinking out situations in advance and determining their resolution.

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## Результаты процедуры рецензирования статьи

*В связи с политикой двойного слепого рецензирования личность рецензента не раскрывается.*

*Со списком рецензентов издательства можно ознакомиться здесь.*

На рецензирование представлена работа «Университет как игра без правил (новые взгляды на процесс построения высшего образования)».

Предмет исследования. Работа нацелена на нахождение механизмов вовлечения студентов в процесс обучения, который выстраивается в виде игры без правил. В целом, проведенное исследование отличается целостностью, поставленные цель и задачи были реализованы.

Методология исследования в работе не определена. Автором было проведено теоретическое исследование, которое позволило представить новый взгляд на процесс построения высшего образования.

Актуальность исследования определяется тем, что необходимо нахождение новых подходов к университетскому образованию.

Научная новизна исследования. Проведенное исследование позволило уточнить содержание выстраивания университета как игры без правила, выявить основные механизмы и принципы.

Стиль, структура, содержание. Стиль изложения соответствует публикациям такого уровня. Язык работы научный. Структура работы четко прослеживается, автором выделены основные смысловые части.

Начинается работа с введения, в котором была выделена проблема. Автор отмечает, что важно исследовать критерии обученности, проблему формирования «твердых» (программирование, умение рассчитывать бюджеты или составлять проекты), «мягких» (воображение, мышление и пр.) и «переносимых» навыков. В работе делается вывод о том, что университет может быть построен по принципам игры. Автор отмечает, что в образовательном процессе все элементы игры присутствуют. Так, имеются уровни, для передвижения по которым важно проходить квесты (дисциплины). В качестве условия выступает достижение победы – за годы обучения важно набрать определенное количество зачетных единиц. Если студент не справляется, то необходимо «игру» начинать заново. Но автор задается вопросом, почему данная «игра» не всегда нравится игрокам. Делается вывод о неправильно выстроенном процессе, важно учитывать основные принципы гейм дизайна в процессе выстраивания образовательного процесса. Речь идет об «игровом университете», в котором вокруг обучаемого создается реальная деятельностная среда (копия социума). Проведенный анализ позволил сформулировать актуальность данного исследования и его цель.

Во втором разделе «Игра без правил» рассматривается процесс создания игровой механики в образовательном процессе, нацеленный на повышение его эффективности. В качестве основных направлений данной работы выделяются следующие: нахождение оптимальной игровой стратегии, определение основных правил, объяснение студентам значимости каждого курса и изучения дисциплины и пр.

В заключении формулируются краткие выводы. Автор отмечает следующее:

- представлен взгляд на непрерывный образовательный процесс как на игру, в которой постоянно развивается и совершенствуется использованный язык;

- идеальный современный университет является абсолютно персонализированной многопользовательской игрой, в которой игровая механика от одной консоли к другой полностью отличается;

- играя в игру, студент постепенно обучается, как правильно присоединять к одной вещи другую, одновременно создавая новую игровую механику, которая меняет правила в целой игре;

- максимально возможная полезность или выигрыш студента будет зависеть от того, насколько игрок способен договориться об изменениях игровых стратегий других участников;

- для того, чтобы обучение («игра») в университете имела многопользовательский характер, важно налаживать коммуникации между игроком (обучаемым) и игрой, в основе которой – искусственный интеллект.

Библиография. Библиография статьи включает в себя 6 отечественных и зарубежных источников, незначительная часть которых издана за последние три года. В списке представлены, в основном, статьи и тезисы. Помимо этого, в библиографии есть монографии. Источники оформлены не во всех позициях корректно и однородно.

Апелляция к оппонентам.

Рекомендации:

- выделить научную новизну и авторский вклад автора в решение выделенной проблемы;

- расширить библиографический список и теоретический анализ, представив более полный анализ исследований, в том числе, современных;

- описать более подробно основной механизм, принципы и правила выстраивания университета как игры без правил;

- провести эмпирическое исследование, направленное на апробацию модели «университет как игра без правил»;

- необходимо провести коррекцию работы на предмет описок и неточностей.

Выводы. Проблематика статьи отличается несомненной актуальностью, теоретической и практической ценностью; будет интересна специалистам, которые занимаются проблемами выстраивания высшего образования. Статья может быть рекомендована к опубликованию с учетом выделенных рекомендаций.