JOGO COMO UMA FERRAMENTA DE CONTROLE INTERMEDIÁRIO DO CONHECIMENTO DOS ALUNOS

GAME AS A TOOL OF MIDTERM CONTROL OF STUDENTS' KNOWLEDGE

ИГРА КАК СРЕДСТВО ПРОМЕЖУТОЧНОГО КОНТРОЛЯ ЗНАНИЙ СТУДЕНТОВ

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RESUMO

O foco na aprendizagem ativa tornou-se um dos componentes significativos da estratégia para a reestruturação do ensino profissional nas instituições de ensino superior. Portanto, o objetivo principal do trabalho é baseado na análise de testes como um dos métodos efetivos de aprendizagem ativa. Os autores desenvolveram um teste eletrônico na forma de um jogo, que contribuiu para a avaliação do conhecimento dos alunos na disciplina de "Marketing". A base do teste eletrônico foi o famoso *quiz*. O artigo descreve em detalhes o algoritmo de teste na forma de um jogo; revelou, durante os testes, as vantagens e desvantagens, bem como a opinião dos alunos sobre o teste de conhecimento baseado no jogo. Estabeleceu-se que a versão de teste sob teste em forma de jogo mostrou vantagens significativas no curso dos testes em comparação com as formas tradicionais de controle de conhecimento a médio prazo e encontrou revisões positivas tanto entre professores como estudantes.

Palavras-chave: *métodos de ensino ativos; teste eletrônico; marketing; métodos de ensino; teste; verificando o conhecimento dos alunos.*

ABSTRACT

The focus on active learning has become one of the significant components of the strategy for the restructuring of vocational education in higher educational institutions. Therefore, the main objective of the work is based on the analysis of testing as one of the effective methods of active learning. The authors developed an electronic test in the form of a game, which contributed to the assessment of students' knowledge in the discipline of "Marketing". The basis of the electronic test was the famous *quiz*. The article describes in detail the testing algorithm in the form of a game; it has revealed, during its testing, the advantages, and disadvantages, as well as the students' opinion on the testing of knowledge based on the game. It was established that the test version under test in a game form showed significant advantages in the course of testing in comparison with traditional forms of knowledge control in the medium term and found positive reviews both among teachers and students.

Keywords: *active teaching methods; electronic testing; marketing; teaching methods; testing; checking knowledge of students.*

АННОТАЦИЯ

Ориентация на активное обучение стала одним из значимых компонентов стратегии перестройки профессионального образования в высших учебных заведениях. Поэтому основная цель работы основана на анализе тестирования как одного из эффективных методов активного обучения. Авторами разработан электронный тест в игровой форме, который способствовал оценки знания студентов по дисциплине «Маркетинг». Основой электронного теста стала известная викторина. В статье подробно описан алгоритм тестирования в игровой форме, выявлены, в ходе его апробации, преимущества и недостатки, а также мнение студентов относительно тестирования знаний на основе игры. Установлено, что исследуемый вариант тестирования в игровой форме показал значительные преимущества в ходе апробации в сравнении с традиционными формами контроля знаний в среднесрочной перспективе и нашел положительные отзывы как среди преподавателей, так и среди студентов.

Ключевые слова: активные методы обучения; электронное тестирование; маркетинг; методы обучения; тестирование; проверка знаний студентов.

INTRODUCTION

There are significant changes in the modernization of Russian education in general and higher education, in particular nowadays. Russia's desire to participate in the Bologna Process and activities related to this has exacerbated the problem of ensuring the quality of higher education, which is the main condition for training specialists for the development of common European space (Zotkina *et al.*, 2017a; Pykhtin *et al.*, 2017).

The creation of a system for ensuring the quality of education in a university is realized through the national project of state support of universities that implement innovative educational programs (Mitrofanova, 2014; Zotkina *et al.*, 2017b; Minnullina, 2017). It is based on the replacement of the educational paradigm, which in science is understood as the initial conceptual model of posing problems and their solutions through certain means and methods. The new educational paradigm is oriented towards the introduction of a competence approach in teaching, which is aimed at forming the specialist's ability to independently apply in a certain context the knowledge and skills obtained in the course of training (Nagymzhanova, 2013; Amirova *et al.*, 2016; Froli and Laccone, 2018). Thus, one of the main principles laid down in the mock-up of the Federal State Educational Standard of Higher Professional Education in the field of training is the establishment of requirements for the results of mastering the basic educational programs for bachelor's training in the form of competencies (the systematization of competencies is similar to that adopted in the European project TUNING)

(Stritch and Christensen, 2016). Therefore, the implementation of the competence approach involves the definition of the structure of competencies that must be acquired and demonstrated after completion by the students of learning as its result (Gravit *et al.*, 2018).

Traditional forms of examining the knowledge in the educational system of Russia are focused primarily on assessing the quality of knowledge and skills acquired by the student as a result of mastering specific disciplines and practices. They can still be successfully applied mainly for the midterm control and intermediate certification; however, when using them, emphasis should be placed on how the acquired knowledge and skills are built into the integrative system of competences being formed (Lamminpiya *et al.*, 2015a; Lamminpiya *et al.*, 2015b).

Control in the narrow sense can be considered as the study of the state of the process at a given moment and its comparison with the planned or normative. Depending on the purpose and content of the assessment carried out, the notion of feedback is used in the meaning of control. In the broadest sense, the notion of "control" is interpreted as an assessment of the state of the process in accordance with regulatory characteristics and development of recommendations for the future, help to the student (Zotkina *et al.*, 2018).

In different sources of literature and in practice there are used different concepts, such as "control", "accounting", "survey", "knowledge verification". These concepts are interrelated, they enrich and complement each other, but each of these concepts has its own specific features

(Lezier *et al.*, 2017).

Knowledge testing is a structural component of control, ensuring external feedback and internal communication of participants in pedagogical interaction; it is aimed at identifying, changing the quality, level, and volume of mastering the educational material by the students and the degree to which the learning objectives are achieved (Mottaeva and Minnullina, 2017; Gravit *et al.*, 2017). The control is not always accompanied by a mandatory mark. Nevertheless, the concepts of "control" and "verification" are very often identified.

According to Galkina E.A the term "accounting of knowledge and skills" does not adequately reflect the essence of those phenomena that it is called upon to designate in pedagogy. Accounting the academic progress means taking into account, fixing, filling and storing information about the results of checking the knowledge of students on the assimilation of the relevant educational material. In other words, the quantitative calculation is the determining sign in the content of the concept of "accounting," but the qualitative aspect of mastering knowledge is also important in evaluating the results.

Thus, knowledge control implies the unity of all its components (verification, evaluation, and accounting) and is defined as the process of identifying and measuring the learning of students, their quality, and the process of correcting errors in the content, speech, logic of the answer, leading to the correction of learning outcomes (Yeo, 2016; Gusarova and Kopytova, 2014; Zotkina and Kopytova, 2014).

Assessment of the quality of mastering the basic professional educational program should include midterm evaluation of academic performance of students and final state certification of graduates. At the same time, midterm monitoring allows identifying and timely eliminating gaps in the student's knowledge, as well as creating an additional motivation for studying the training material throughout the semester (Tepe, 2016).

In the process of choosing the forms and methods of midterm knowledge control, it is important to take into account the type of attestation and the nature of the expected result, which in many respects determines the choice of one or another measurement method. To assess the learning outcomes, oral, written, computer (information technology) forms of monitoring can

be used (Zotkina, 2011; Lezier *et al.*, 2017). The main forms of oral and written monitoring include web-quest, report, colloquium, test work, course project, report, abstract, interview, testing, oral interview, essay, etc. The technical and innovative forms of monitoring include electronic workshop, business or role game, project, simulation game, computer testing programs, brainstorming, situational test, simulators, etc.

MATERIALS AND METHODS

Analyzing the advantages and disadvantages of traditional forms of monitoring, the authors proposed electronic testing in a game form for the midterm monitoring of students' knowledge, which was tested in the discipline "Marketing". The use of testing contributes to the assessment of the available knowledge and skills of students, and its implementation in electronic form makes it possible to automate the process of identifying the results of evaluating the knowledge of students in the form of evaluation mark (Minnullina and Abdrazakov, 2017). So, the main advantages of electronic testing in the form of games are:

- saving the teacher's time (the time spent is 2-3 times less than by oral control);
- the ability to put all students in the same conditions;
- the possibility of developing equivalent in difficulty possible answers for the questions;
- the possibility of accumulating and storing an electronic database (Kopytova, 2016);
- the ability to objectively evaluate responses when the instructor's assistance is not available;
- the ability to verify the validity of the mark given to the student;
- the reduction of the subjective approach to the assessment of the student's preparation, conditioned by his individual characteristics.

For the development of electronic testing, the authors have chosen as the basis the famous English quiz "Who Wants to Be a Millionaire?", Which is on the air of various television companies around the world. The creator of the quiz is Celador. Currently, more than 100 countries are licensed to produce the game. In Russia, the game is presented on the First Channel under the title "Who Wants to Be a

RESULTS AND DISCUSSION:

The content of electronic testing is determined by the conditions of the quiz show, as well as by the course of lectures and material of the practical classes of the discipline "Marketing". Based on the name of the show and the discipline being studied, testing has the name - "Who wants to become a marketer?" In our opinion, the well-known name of the game show will attract the attention of students to electronic testing and will involve them in the process of midterm assessment of knowledge with minimal psychological stress (Minnullina and Abdrazakov, 2018; Kazannik, 2012).

When determining the structure of electronic testing in a game form, the following restrictions were formulated:

1) testing is carried out using a computer to automate the process;

2) the number of control questions should be within 12;

3) all the questions should be based on the material of one discipline;

4) the result of passing the game should be displayed on the screen in the form of points corresponding to the results of the assessment of knowledge;

5) the result of testing should be blocked (with the unlock password for the teacher) to prevent the student from re-passing the test.

When conducting electronic testing in a game form, the teacher takes the role of the game coordinator, and students play the role of players. The sequence of passing the electronic testing by the student (hereinafter referred to as the player) assumes the following stages:

1. Selection stage. This stage is necessary to ensure that there is a minimum level of knowledge of the course of discipline. For this, three questions are formed, based on the conceptual apparatus of discipline. It is necessary to give the right answer to the question posed to determine the competence of the player and to gain access to the game.

2. The main stage. In order to "earn 1 million rubles" and "become a millionaire", namely, to receive a positive assessment of knowledge of a certain level, the student who has

passed the qualifying round must answer 10 questions on the discipline in question. Each subsequent question differs from the previous one in complexity. The first questions touch the theoretical foundations of the discipline under study, which will not be difficult to answer, and subsequent questions require knowledge in certain areas of the course, suggesting an independent deeper study of these directions by students. With the increase in the level of complexity of the questions, the amount of the prize, which is measured in points from 50 to 100, is consistently growing.

The level of points is determined by the adopted special scale with the following limits:

1) Having less than 59 points means that the level of knowledge is "unsatisfactory". The student did not master the theoretical content of the course;

2) 60-73 points mean that the level of knowledge is "satisfactory". The student partially learned the theoretical content of the course. However, errors and gaps in knowledge are noted;

3) 74-84 points mean that the level of knowledge is "good". The student has fully mastered the theoretical content of the course, and there are no gaps in the basic concepts. However, it has been noted that some practical skills have not been sufficiently developed;

4) 85-100 points mean that the level of knowledge is "excellent". The student has fully mastered the theoretical content of the course and the material allocated for independent study, and also has formed practical skills according to the course.

3. The final stage. At the end of the test, the player receives an effective evaluation of the acquired knowledge in the form of scores. Also, after the first error, testing ends, and a meaningful assessment of knowledge is output accompanied by a conclusion and suggestions for fixing the material, if necessary.

The player within the framework of electronic testing has the right to use three tips:

1) "50/50". Two variants of the answer out of four are excluded, which simplifies the choice for the player;

2) "Call a friend". It gives an opportunity to learn from a classmate pre-determined by the player correct answer to the question posed. In

this case, a limited time of 30 seconds is allocated, which is counted by the system;

3) "Help of the audience". It is realized as voting of an artificially formed audience for each variant of the answer to the question posed. The computer displays the result of the statistical probability of the correct answer.

The algorithm of the electronic testing process is shown in Figure 1. Such a scenario of electronic testing allows you to check the received knowledge in an interactive form during the lecture, practical classes, as well as in the course of independent work. At the same time, students acquire skills in structuring the problem, reasoning, finding the rational solution, and the right answers in game conditions (Kopytova, 2015; Liu and Perry, 2016).

At the heart of the game and, accordingly, the electronic testing are such methods of teaching as testing; method of brainstorming; final examination. Electronic testing can be implemented both on the basis of Microsoft PowerPoint presentation software with an automatic slideshow, and on more complex platforms. The successful conduction of the midterm knowledge control in the form of electronic tests is determined by the fulfillment of the following conditions:

- 1) each student must have a workplace with a computer;
- 2) the total time allotted for acquaintance with the conditions and the conduct of the game makes 1 academic hour;
- 3) the conduct of the game must be controlled by the teacher in the audience;
- 4) the questions should be divided into groups by the degree of complexity;
- 5) Within each group, questions should be changed in a random order to exclude cheating between students.

When using electronic tests, an important factor is a feedback, the main options of which can be a quantitative assessment of the right answers, demonstration of the correct answer to the student, and presentation of a report on the correctness of the answers (Kopytova, 2017).

CONCLUSIONS:

To identify the possibility of testing the knowledge and skills of students using electronic

testing, an approbation was carried out on the example of the discipline "Marketing" in the format of the game "Who wants to become a marketer?". Electronic testing has been tested among bachelors in the field of "Trade Business", "Production Management", as well as among students of other economic specialties studying the discipline "Marketing" and "Fundamentals of Marketing" in the educational process. During the approbation of electronic testing, the opinion of 85 students and recommendations for its improvement were identified (Table 1).

Based on the results of approbation, the following advantages of conducting midterm knowledge control in the form of electronic testing are revealed:

- 1) an increase of interest in the educational material of the discipline due to the attractiveness of modern execution;
- 2) simultaneous testing of knowledge of all students in the group;
- 3) the minimum amount of time to conduct a knowledge test and identify the results by automating the process;
- 4) the applicability to the evaluation of knowledge of both midterm and intermediate examination of students;
- 5) the ability to adapt to most courses of disciplines.

Despite the wide possibilities of using electronic testing in the game form for midterm monitoring of students' knowledge, during the approbation the following difficulties were revealed:

- 1) the availability to have a positive result in the absence of sufficient knowledge of by randomly selecting the answers during the game;
- 2) the need for a laboratory equipped with computers;
- 3) the lack of the possibility to use the game for groups with a large number of students due to the limited provision with the necessary equipment for students.

Despite the revealed shortcomings, the electronic testing in a game form showed significant advantages in the course of approbation as opposed to traditional forms of midterm knowledge control, found positive responses both among teachers and students. It should be noted that it is quite difficult to attract

students' attention to the midterm knowledge control in the traditional form due to the experienced discomfort and psychological stress. The developed electronic testing can be one of the options for eliminating the above-mentioned shortcomings and involving students in the learning process with positive feedback.

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Table 1. Results of the survey of students during the probation of electronic testing

Parameters characterizing the test	Rank of significance (1 - least significant, 5 most significant)	Execution
1. The complexity of the questions	5	4,8
2. Quality of performance	4	4,6
3. Number of questions	3	4,2
4. Convenience of passage	4	3,7
5. Time Spent	4	4,9
6. Participation of the teacher in the process	2	3,5
7. Workplace equipment	4	3,1
Overall rating	5	4,8

Figure 1. Algorithm of the process of electronic testing