

Conference Paper

New Methods of Teaching at Russian Universities in the Context of Society Digitalization

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Abstract

The article provides a classification of new teaching methods used by university teachers in order to adapt students to learn new material in the context of their cognitive activities. In modern conditions of the rapid development of digital technologies, it is becoming increasingly difficult to navigate the growing flow of information, so teachers are faced with the problem of helping students learn more effectively, especially if students lack knowledge of new digital technologies. Therefore, the function of the teacher is changing significantly, and there is a need to use such teaching methods that help students more easily and quickly recognize reliable sources, at the same time acquiring the ability to set the necessary search queries and navigate through digital space. New learning technologies, such as gamification, blended learning, mobile learning, micro-learning, project-based learning and facilitation sessions, contribute to the active teacher-student interaction and the formation of new knowledge and competencies. At the same time, the process of acquiring knowledge becomes secondary, and the acquisition of new competencies that will be necessary in future professional life comes to the fore. The digital educational landscape offers students a greater choice, which actualizes the promotion of new educational technologies in the modern university space.

Keywords: new teaching methods, digitalization, Russian universities, blended learning, gamification.

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1. Introduction

Today, most Russian companies are on the verge of the fourth industrial revolution, so the professional community needs to understand that in order to survive there is an urgent need to introduce new production facilities based on automation, digital and Internet technologies. Currently, the training of personnel with world-class competitiveness dictates the need to create a special learning environment, ensuring that university graduates develop such competencies that actually determine the ability to compete in the modern economy. The effective performance of any enterprise directly depends on the potential of its high-quality personnel. The shortage of skilled workers

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in the Russian production sphere is the main constraint on the country's industrial and economic growth.

According to O.E. Rebrin, "the assessment of the learning outcomes is an essential component of the approach to the design and implementation of educational programs". One of the promising means to develop such programs is the formation of a competency-based approach to determining learning outcomes, the main principle of which is "the consistent implementation of a holistic approach based on the definition of learning outcomes, modernization of teaching and learning, and the development of assessment tools that are appropriate for the learning outcomes". As a result of mastering such an educational program, future professionals will be able to effectively demonstrate the knowledge, skills, experience, personal qualities and attitudes acquired during training. The learning outcomes should be aimed at the formation of the "specified competencies reflecting the goal of the program, its desired result, and the achievement of which can only be assessed by the graduate's successful production activities". The achievement of the formulated learning outcomes at the program or module level is a prerequisite for the successful implementation of the module or program as a whole and is confirmed by conducting specific assessment [7, 22].

According to I.I. Muravyeva, in the context of globalization and an unprecedented pace of technological development, the most important factor of personal development is learning, understood as training that is carried out by the person himself to effectively adapt to constantly changing external conditions and for effective professional and personal self-realization. Therefore, the learning outcomes are the wording of what a person should know, understand and be able to do at the end of training. This understanding of learning emphasizes the necessary activity of a person and his responsibility for his own professional and personal development. Learning outcomes are expressed in competencies, which are generally understood as a holistic and dynamic combination of knowledge, skills, experience and relationships in activities. Consequently, the learning outcomes and competencies are two aspects of the same phenomenon [6, 21].

2. Methodology and Methods

The study methodology includes theoretical methods of classification, generalization and analysis, as well as empirical observations and a testing method.

3. Results and Discussion

The topic of this article was chosen for subjective reasons. Being a teacher of accounting in economic specialties and lecturing for 144 hours in one university term, the author has faced the problem of students' lack of attention to the lectures and their ignorance of the importance of the course for their future professional life. Many students believe that the answer to any question they can find in the search engine through online sources, accounting can be done in an outsourcing company or in the 1C Accounting program, therefore they need to study the course only in order to pass the exam. The lack of students' interest in the subject prompted the search for new teaching methods and the possibility of their application in the traditional university educational format. Among many methods, the author has chosen those that could be implemented at practical and lecture classes in accounting.

The advantages and disadvantages of each method are given below.

Gamification. Game practice as a teaching method is necessary in cases where a barrier arises between the teacher and the student in explaining and understanding the new complex material. To remove it, it is necessary to use the space of free action, where players can demonstrate their personality traits and creative potential. The game can include the following formats: trainings, analysis of situations, designing new offers, and business games.

The game format implies the presence of a problem that needs solution during the game, the game itself and further analysis (reflection) of the work done. Games provide the ability to generate and discuss scenarios, abstracting from the constraints that fetter participants in real life; the opportunity to observe people, the manifestations of their abilities and skills, when they, passionate about the game, forget about the impression they make on the observers. Lack of funds to solve a specific situation reveals a problem, and this problem becomes the subject of the game.

The game directly interacts with the model of the problem, and the interaction in model reality in the context of the problem includes the emotional involvement of students, which leads to a deeper understanding of the problem. The ability to reflect allows you to comprehend the problem before and after the game, to determine the attitude to the problem, and to correct the conclusions and solutions after the game.

During the application game, students form their own opinions, gain new knowledge, acquire instrumental skills, express emotions, and self-identify. Work in a group allows its members to show such personal qualities as the ability to negotiate and resolve

contradictions, the ability to self-identify, understand the other's opinion and plan further actions.

The disadvantages of gamification may be a decrease in interest in traditional teaching methods, such as lectures and practical exercises, violation of the internal microclimate because of frequent competitions, the habit of receiving prizes and gifts due to winning, and a decrease in interest in completing tasks without a prize pool [3, 127].

Blended learning. This format combines several types of classroom learning: with the teacher's participation, online learning, the combination of the teacher and online learning. This involves the use of special information technologies, such as computer graphics, audio and video, interactive elements, etc. This format of learning has developed due to the fact that, as a rule, only a third of students from the entire group are in the zone of proximal development and are the target audiences actively participating in classes. The second third of students, due to the fact that they quickly learn material and are able to independently acquire knowledge from other information sources, disregard what is happening and do not follow the teacher's instructions. The third part, on the contrary, because of inadequate previous knowledge, truancy or ignoring homework, is not included in the learning process due to misunderstanding.

Using techniques that update the student's knowledge, such as personalization, skill-based learning, project work, and a shared learning environment, the teacher can achieve a synergistic effect that assumes that all students can participate in the classroom according to their capabilities.

Examples of blended learning are:

1. Inverted class;
2. Station rotation model;
3. Laboratory rotation model.

The *inverted class* technology changes the student's position from passive to active. The lecture material is offered as a homework assignment in audio, video, or text format. After reading the material, the student can get a task in the classroom at a deeper level and get advice from the teacher on some problematic issues. The inverted class technology must be used systematically.

The essence of the method is that complex homework for detailing, analysis, and classification will be performed not at home, but in the classroom, with the teacher's support in working out difficult tasks. The teacher's function changes from the transfer of knowledge, because students can find everything they need in various sources, to

learn how to use digital technologies both in the classroom and future professional life. Being ready to perceive the learning material, the student does not need goal setting in the classroom.

The technology of the inverted class does not imply the transfer of new lecture knowledge, but the ability of students to collaborate and solve problems, seek and apply information, work independently and think creatively. Timely completion of homework should serve as a means of supporting the student's autonomy, and an incomplete task should signal problems in understanding the material.

The advantages of the method are short video and audio recordings (not longer than 10 minutes), and this is the maximum time for concentrated viewing of information. If questions arise, they will be discussed at the practical session. When working independently, students can review difficult moments of the video several times. With the traditional method of teaching, motivation and involvement in learning are lost, because students do not understand the practical application of the knowledge acquired at the lecture. In the classroom, after studying the theory as a home assignment, there is a joint work in groups, where the specific situations are analyzed with the support of the teacher. Learning content will act as a tool for constructing new knowledge and solving problems. After such classes, the student will be ready to critically evaluate, select, test, draw conclusions, make decisions, design, combine, integrate, create, hypothesize, analyze, find a connection, generalize, classify, organize, compare, and systematize, when working on a more complex independent task, such as a course project.

The *station rotation model* allows students to perform various activities in the classroom, interact with classmates and complete tasks for a limited period of time. The role of the teacher is changing, because they no longer give a lecture or solve a problem, but coordinate, guide, instruct and diagnose students' actions. Students are divided into 3 groups and receive route sheets that they need to move through during one or more classes. The first group works with the teacher, the second group performs online tasks on computers or phones, and the third group performs a project task. After a certain time, according to the route map, the group must go to another station and perform the next task.

The *laboratory rotation model* is very similar to the station rotation model. The difference is that students move not only within the classroom, but also perform individual tasks in the computer lab.

The only disadvantage of blended learning consists of insufficient technical support and certain costs for the creation of video materials, worksheets, tasks, and tests.

Mobile learning introduces new technologies of learning applications for smart-phones and tablets. New pedagogical settings allow using a mobile device to complete tasks on the preparation of presentations, completion of tables and graphs quickly and in a playful way. The advantage is that there is an intersection of personal and educational space, mobile applications develop creative skills, curiosity, and introduce to IT-technologies.

The disadvantage of mobile learning is in the fact that it is only an auxiliary tool for the learning process and the knowledge gained cannot be confirmed by supporting documents [2, 4, 9, 10].

Facilitation session: It is a professional organization of the group work, aimed at clarifying and achieving the group's goals. The person who arranges the process is a facilitator, who knows communication techniques, is not an expert on the topic and cannot evaluate. After generating a request for a problem, such as searching for a topic for a project, reality is scanned and obstacles are found on the way to solving it using facilitation methods. Then, ideas for overcoming the problematic situation are discussed, the most acceptable ones are selected and a project implementation plan is created, which includes a team commitment.

The advantage of the method consists in maximum involvement, diversity of opinion, solution of the problem by the participants, a mutually acceptable solution, and shared responsibility.

Project learning: The current socio-economic changes necessitate the need for active people who could quickly adapt to changing labor conditions and are capable of self-education and self-development. For several years, the educational institution has been forming a set of competencies for its graduates, which correspond to the direction of study. However, a larger number of competencies rarely reach the maximum level. Most of the competencies associated with practical activities can only be formed by modeling with other competencies. Obviously, the employer's model of bachelor's or master's competencies looks different from that of the university. Only immersion in the real work process allows the student to achieve the desired level of competence formation and well motivates to get the necessary knowledge and skills [8, 31].

The traditional way to get practical skills is through work practice, but trainees have little chance of mastering the competencies they need due to the workload of the practice managers and the reluctance of the company's employees to work with students. The decision lies in creating a workflow in a virtual space and applying project learning. This includes the arrangement of project teams. Each project has its own clearly defined practical goal, and the project is managed by a university teacher,

company representative, or skillful graduate students. The entire design process is carried out on the working portal, and ELearning Server 4G platform can act as such: the design process is organized, results are recorded, competencies are formed and can be measured. The task of a modern teacher is to improve motivation, develop suitable topics, prepare tasks and act as a consultant at all stages of design. The main thesis of the modern understanding of the project methods, “Everything that I learn, I know why I need it and where I can apply this knowledge”. The project method is focused on students’ independent activities that they perform for a certain period of time and the method can operate within one or more disciplines. A project always assumes the solution of some problem, and this necessitates, on the one hand, the use of various methods and learning tools, and on the other hand, the integration of knowledge and skills from various fields of science and technology. Project outcomes are displayed as a specific solution or a specific result that is ready for implementation.

The advantages of the method are that students obtain knowledge from different sources independently and with great desire, learn to use it to solve new cognitive and practical problems, acquire communication skills by working in different groups, develop their research skills: problem identification, information collection from all kinds of documents, observation, experiment, analysis, development of hypotheses and critical thinking. The project simulates a real technological chain: task — result [5, 162].

The disadvantages of the method are the heavy load on the teacher as a consultant and the need for special classrooms with software and technical support. Also, the principle of systematic and scientific knowledge is not implemented.

Hence, considering new teaching methods, it is possible to identify their advantages over traditional education due to the fact that they encourage students’ interest in learning, instigate the active participation of everyone in the learning process, contribute to the effective assimilation of learning material, have a multifaceted impact on students, provide feedback, form the student’s opinion and life skills, and contribute to changing behavior [1, 15].

The value of each method is as follows:

1. As a result of gamification, each student is actively involved in the classroom work and makes the most of the class time.
2. Building individual educational trajectories with continuous monitoring and procuring of students’ progress in blended learning provides a full-fledged personalization of learning.

3. When using blended and project-based learning, students are motivated to study as a result of understanding what they need knowledge for.
4. In order to demonstrate the gained competence to experts at the real enterprises, the specified learning outcomes are fully acquired.
5. When performing tasks of inverted classes and project work, students develop a steady interest in their chosen type of professional activity.
6. As a result of project work, theoretical learning and practical training are integrated.

The main disadvantages are as follows: the introduction of new technologies requires additional time to develop new tasks, get acquainted with new programs, and also involves additional funding for equipping classrooms.

4. Conclusions

After studying the new teaching methods, the author has introduced the format of blended learning into her practical work and noticed an increased motivation of students to study the course. The first stage of implementing the changed format consisted in the course placement on the Hypermethode platform, including all lecture materials, presentations, tasks, and tests for current and final self-monitoring. The second step was to train students to work with the platform and develop tasks for completing online. The third step was to assess tasks and set ratings. Thus, there was an encouraging tool that allowed students to complete tasks on time and get a grade with an error analysis. When students attend classes, they have an idea of what material will be given, they can find a presentation and ask clarifying questions during the class. Further, the author hopes to analyze her practical results and provide evidence of improved students' performance as a result of a change in motivation to learn.

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