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MONITORING AS A COMPONENT OF THE COURSE "LIFE SAFETY AND LABOR PROTECTION"

Purpose. Analysis, generalization and comprehension of the experience of using modern control methods, as well as the definition of psychological and pedagogical bases of application of test control when studying the discipline of "labor protection".

Methodology. To achieve the goal, a number of scientific methods were used, in particular systematization, theoretical analysis and generalization.

Findings. The notion of "control" as a subsystem within the training system as a whole was considered. Tasks, functions and types of control are considered. Control acts as an effective means of management, correction and stimulation. An integral part of the control is an assessment system, which is understood as a mechanism for carrying out a control and diagnostic communication between the teacher and a student on the success of the educational process. Types of audits of educational achievements are analyzed and their advantages and disadvantages are distinguished. The meaning of knowledge control is an estimate. Valuation functions are determined as a tool for stimulating cognitive processes. The benefits of the rating assessment system are considered. It is established that in the process of verification and evaluation it is important to strive and achieve consistency, the objectivity of determining the level of educational achievements of students based on the main requirements in accordance with specific objectives and individual characteristics of development of cognitive abilities.

Originality. The effectiveness of the modern system of control and evaluation of student achievements, objectivity and representativeness of the obtained results in terms of distance learning was considered and analyzed.

Practical value. The study of students' knowledge should give objective information not only about the final result of educational activity, but also about the educational activity itself: whether the form of action corresponds to this stage. Properly delivered control of students' educational activities allows the teacher to evaluate their knowledge, skills, abilities, to provide the necessary assistance and achieve their learning goals.

Keywords: *higher education institution, monitoring, control of training achievements, evaluation, rating*

Introduction. Modernization of the process of control and evaluation of general and professional knowledge acquired by students, a modern approach to the choice of methods and forms of monitoring are some of the main levers for obtaining and maintaining a higher competitive advantage. The activities of universities in the field of new technologies are usually advanced. However, free economic zones continue to struggle with the problems of quality assurance and internal control of students' knowledge. And this determines the relevance of the introduction of pedagogical experiment, which aims to study innovations in a comprehensive approach to assessing student knowledge.

Modern technological and social transformations related to social transformations and the coronavirus pandemic have become major challenges to the educational system of European countries [1]. Researchers note that universities aim to prepare the new generation for skills of technical, cultural and scientific literacy, ability to critical research, moral choice, willingness to act quickly in difficult situations [2, 3]. All this has become a necessary part of modern education to train a specialist useful to society [4].

In order to further develop, university education must always seek and use the most correct, modern and innovative technologies, find the most effective forms of forms of monitoring the formation of general and professional competencies. In order to maintain a highly competitive position in the market of educational services, it is necessary to promote quality management and control over the formation of competencies at the institutional and individual levels.

University education involves the availability of compulsory subjects taught in different faculties and for different fields of knowledge. These include "Life Safety and Labor Protection". It is provided in the bulk plans of students of different educational levels and different specialties. Some Eastern European universities combine this subject with life safety and civil protection. The attitude of students to labor protection becomes problematic, because it does not belong to the cycle of professional training, so it requires active motivation and constant updating of content, technological solutions, as well as methods for monitoring knowledge. An important task of the teacher with all the available methodological and logistical potential to draw attention to the study of the subject "Life Safety and Labor Protection". In addition, the competencies that are formed during the study of this course are vital in future professional work. That is why it is important to control and comprehensively objectively assess the educational achievements of students.

Literature review. Research on the system of assessment of educational achievements has both theoretical [5, 6] and practical directions [7, 8]. An overview of theoretical research on the classification of its forms and methods is contained in a number of works [9, 10]. Recent research in the field of finding effective knowledge monitoring systems should include developments in the field of higher education [11, 12]; guidelines for the formation of curricula [13, 14]; determination of organizational conditions and specific factors that affect the objectivity and quality of evaluation [15]; autonomous university systems governed by organizational competencies, quality of educational services and knowledge exchange system within faculties and universities were considered [16].

A number of studies have identified algorithms for data collection and analysis to determine the degree of achievement of educational goals and further development of rating systems [11, 15]. Studies show that the system of testing students' knowledge within the educational process also includes the universal component and values of democratization of education [17, 18]. There are works that also paid much attention to the algorithm of creating an educational product, where an important component was the methods for assessing knowledge [4, 19], which involved assessing the quality of student skills and how methods and forms of assessment are approved by students with the educational process being the result of activities of all its participants.

The complexes of the most effective forms and methods of knowledge assessment for a particular academic discipline, as

well as the influence of rating assessment systems on the formation of a quality educational product remain insufficiently studied.

The purpose of the study was:

- considering the experience of comprehensive assessment of knowledge of students majoring in "Law Enforcement" and "Hotel and Restaurant Business", the use of modern models of its implementation;

- assessment of the introduction of the rating system and the use of test control in the study of the discipline "Life Safety and Labor Protection" by the participants of the educational process;

- establishing the algorithm and structure of the process of monitoring students' knowledge using an integrated approach.

Methods. In order to conduct a pedagogical experiment, empirical (diagnostic) methods were used, as well as methods of questionnaires (written form) and observation. The results of the study were analyzed using semantic and thematic analysis. Regarding the interpretation of data, quantitative and qualitative approaches were used to establish and compare the frequency of responses and to transform all the information obtained into numerical indicators.

The research experiment was conducted during the 2020–2021 academic year at Zhytomyr Polytechnic State University. The experiment involved students of the first (bachelor's) level of higher education in the specialties "Law Enforcement" and "Hotel and Restaurant Business" – 68 people (3 study groups: G1, G2, G3).

Respondents were surveyed using Google Drive forms. In the context of the experiment, the experience of previous research in this area was taken into account, and elements of the methodology of assessing students' knowledge were also used.

Given the presented context, the peculiarities of the control of students' academic achievements with the help of a set of methods and forms of knowledge testing were considered; the students' assessment of the rating system was clarified as well. The body of questionnaires created to achieve the research goal was adapted to the characteristics and professional orientation of bachelors of educational programs who participated in the experiment. Respondents were interviewed with anonymity and privacy, and all participants in the experiment agreed in writing to participate.

During the experiment, current control was performed and 3 control tests were performed (at the beginning, at the equator and at the end of the study). Test tasks consisted of 3 blocks of 10 questions each, they concerned the test of basic knowledge of the subject (at the beginning of testing); the degree of formation of competencies provided by the curriculum in the first module (the equator of the experiment); the final result of the acquisition of knowledge and skills in the discipline "Life Safety and Labor Protection".

At the end of the experiment, a survey was conducted on the respondents' assessment of the quality, acceptability, objectivity and viability of testing in combination with other forms and methods of control and rating system.

Disadvantages and difficulties encountered during the experiment: the pedagogical experiment requires a lot of time (during the school year); it is impossible to determine the reasons for changes in preferences (choices) and assessments; the research team is in the passive position of an observer; there are no opportunities to conduct in-depth qualitative research.

Results. Student-centered learning involves the actualization of practical skills based on a substantial theoretical basis, and this process will not be effective without an objective assessment system. It is important to define the criteria and introduce a clear algorithm for the evaluation of academic achievement, as sometimes some university structures are unable to determine the creative, scientific, managerial potential of students. Competence approach in the field of higher education requires improving the quality of education, and hence the constant modernization of models and forms of student assessment.

The main forms of organization of testing of knowledge, skills and abilities of students used in the experiment include group and frontal testing, as well as self-control and individual testing.

In the conditions of teaching the discipline "Life Safety and Labor Protection" a body of tests, methodological literature and educational materials for theoretical and practical studies were developed. During the testing, digital technologies were used, which made it possible to reach a sufficient number of students, assess the level of academic achievement and determine the level of knowledge of specific topics, practical cases, individual sections of the discipline. The final test involved assessing the level of mastery of knowledge in the discipline as a whole.

In order to improve the system of monitoring the knowledge and skills of students, the control methods used in the experimental study were systematically presented and described, and the goal they should pursue was determined (Table 1).

At the first stage, the basic principles of organizing a rating system were also determined. This is the relativity of the rating: the total number of points is directly proportional to the time spent on certain topics.

In order to determine the rating, a system of mandatory and additional points was introduced: mandatory points are those that students receive for independent work and projects, term papers, test results, problem solving; additional points are a tool to motivate students to perform problematic and creative tasks, participate in competitions, conferences, as well as encourage timely performance of educational tasks and tests; Additional points also assessed the active classroom work of the student, his/her degree of involvement during seminar, laboratory, creative work.

A rating system for evaluating student work used during the experiment was compiled (Table 2).

The results are presented in percentages, previous rating positions were measured according to the criteria in Table 2.

At this stage, preliminary testing of students on the basic level of knowledge of students in the discipline "Life Safety and Labor Protection" (Table 3).

At the stage of the experiment, the rating system was actively used in educational practice. The study material included active practical activities, interactive methods of work, regular consultations, difficult moments for students in the assessment were explained and clarified by teachers who worked with this discipline.

This stage also included Test 1 in the form of testing, which showed the success of respondents and their ranking positions, measured in accordance with certain criteria (Table 4).

According to the results of the control, the overall success rate of higher education students increased by 2 %. In groups 2 and 3, the number of grades increased by 3 %.

At the final stage of the project, the results of the survey of participants in the experiment were analyzed. A block of questions was prepared for students, their answers were considered

Table 1

Purpose and methods of control of knowledge assessment

Kind of control	Purpose of control	Methods of control
Previous control	To establish a preliminary basic level of students' knowledge	testing, interview, questionnaire, observation, self-control
Current control	To control the mastered material on the topic, educational unit	surveys, testing, practical work, innovative methods of control, self-control
Final control	Evaluate the effectiveness of educational activities, the quality of knowledge about the sections and topics of the discipline	final testing, term paper, defense of mini-projects, self-control

Table 2

Rating system for assessing student performance

The level of student achievement	Criteria for assessing academic achievement
Initial	The student is passive, is not the initiator and active participant in the dialogue (answers briefly and vaguely, needs leading questions and encouragement), tries to avoid lengthy answers. During the test he/she has less than a third of the correct answers, does not participate in project, group activities, does not exercise self-control, is late with the deadline for submission of works. During practical classes he/she makes 3–4 mistakes: he/she thinks long before answering and testing, gives only some remarks, makes actual language mistakes. Volumes of work performed and tests do not meet the norm
Average	The student maintains a dialogue, but it is only about the actual content, there is no analysis. During testing, they have more than a third of the correct answers, make 2–3 of the following mistakes: think long before the answer, give only a few remarks. Sometimes they delay implementation, are involved in project activities, try to perform difficult levels in tests. The volume and timing of work performed and tests are approaching the norm
Sufficient	The student is proactive, maintains a dialogue, performs tasks quickly enough, participates in group work. He/she correctly uses the terminological apparatus, performs tasks, adheres to the rules of communication culture, but does not express his/her own opinion, does not make analytical conclusions, does not initiate group work. More than 25 % of correct answers during testing. The volume corresponds to the norm
High	The student initiates and actively participates in the survey, has a high culture of creative work, projects, tasks, test tasks, confidently presents his own opinion on all aspects of the content of the discipline. During testing, more than a third of the answers are correct, 85 %. Volumes and terms of performance, registration of works and tests completely correspond to norms

Table 3

Preliminary testing of students for knowledge of the basics of the discipline "Life Safety and Labor Protection"

	Unsatisfactory	Satisfactory	Good	Excellent
Group 1	23	20	40	17
Group 2	21	22	38	19
Group 3	25	20	40	15

Table 4

Test work 1 in discipline "Life Safety and Labor Protection"

	Unsatisfactory	Satisfactory	Good	Excellent
Group 1	20	23	38	19
Group 2	18	25	36	21
Group 3	20	22	41	17

and compared, the main one was the assessment of the rating system of assessment of students' knowledge and skills, as well as the attitude to the applied forms and methods of assessment (Table 5).

Table 5

Evaluation of the introduction of a rating control system for the discipline "Life Safety and Labor Protection"

No.	Question	Yes	No	I do not know
1	Does the rating system meet the goals set in the discipline?	55	25	20
2	Do all the topics taught contribute to the professional growth of the student?	47	20	37
3	Does the assessment system in this discipline meet European standards?	45	15	40
4	Did the teachers use all the resources to improve the quality of assessment?	60	30	10
5	Are you satisfied with the forms of assessment in the discipline?	55	25	20
6	Do evaluation methods match your perceptions of quality and objectivity?	60	27	13
7	Should the rating system for the discipline "Life Safety and Labor Protection" be further implemented?	70	25	5

As we can see, 25 % of students disapproved of the use of the rating system and the active use of test systems.

The majority of students positively (55 %) evaluate the practice of implementing tests and ratings as an evaluation system that meets the goals set in the discipline "Life Safety and Labor Protection". At the end of the project, 60 % approved of the objectivity of assessment methods, 70 % of the respondents believe it is appropriate to continue to use the rating system, which means there is an understanding of the need to innovate to assess students' knowledge and skills.

At the *3rd* (final) stage, a final control was conducted, which made it possible to determine how the performance of the students who participated in the experiment will change if it changes.

At the initial stage, students already had a basic level of knowledge acquired in high school and vocational schools, colleges and others. The highest number of the base level was "good" and "satisfactory". At the final stage, students were involved in the rating system, final testing was introduced, which showed an increase in grades to "excellent" and "good" by 7 %. Tests for Module 2 showed that all groups demonstrate readiness for testing, sufficient digital literacy and motivation of students increases their own position in the ranking of the assessment system.

Discussion. A number of studies have shown that the culture of assessment involving the rating system in university education is assessed by students at an average level [9]; this was due to the fact that the rating system and comprehensive testing using digital technologies was in its infancy. The presented research notes the technical and psychological readiness of students for the rating system and the introduction of testing as a form of control. Therefore, the results of the evaluation of such a system were positive. In general, 65 % of the respondents are motivated to continue working with the rating system.

A critical review of forms of assessment of practical activities in the structure of curricula in other disciplines, including foreign languages [20] found that testing as a form of assessment showed objective results. A clear and non-subjective approach to grading is effective, and there is a link between high scores, student achievement, and additional motivation and a desire to improve through constructive feedback. In the presented study, testing in combination with other forms of control also proved to be effective and generally positively assessed by students.

The research on the use of this tool in different settings should be continued, and the effectiveness of rating systems in other set-

tings and higher education institutions should be determined.

Conclusion. From a variety of models of knowledge control, each educational institution must choose the most appropriate ones for the institution's strategy, educational mission and goals, and thus develop its own assessment system. The introduction of a rating system and comprehensive testing of existing types and methods of control showed that in the study of the discipline "Life Safety and Labor Protection", it is effective and positively assessed by students. The complex testing included current test control, final test control, individual tasks – all this also involves the use of the distribution of test tasks on different levels of complexity. In general, the students positively assessed the use of the rating system, as well as a set of forms and methods of assessment with active involvement of testing opportunities. Providing an objective picture of the formation of professional competencies is possible through a comprehensive approach to knowledge assessment with the involvement of a rating system.

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Моніторинг – складова курсу «Безпека життєдіяльності та охорона праці»

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Мета. Аналіз, узагальнення та осмислення досвіду використання сучасних методів контролю, а також визначення психолого-педагогічних основ застосування тестового контролю при вивченні дисципліни «Охорона праці».

Методика. Задля реалізації поставленої мети була використана низка наукових методів, зокрема систематизація, теоретичний аналіз і узагальнення.

Результати. Було розглянуто поняття «контроль», як підсистема в рамках системи навчання в цілому. Розглянуті завдання, функції та види контролю. Контроль виступає як ефективний засіб керування, корекції та стимулювання. Невід'ємною складовою контролю є система оцінювання, що розуміється як механізм здійснення контрольно-діагностичного зв'язку між викладачем і студентом із приводу успішності освітнього процесу. Проаналізовані типи перевірок рівня освітніх досягнень і виокремлені їх переваги й недоліки. Сенсом контролю знань є оцінка. Визначені функції оцінки як інструменту стимулювання пізнавальних процесів. Розглянуті переваги системи рейтингової оцінки. Встановлено, що у процесі перевірки та оцінювання важливо прагнути й досягати систематичності, об'єктивності визначення рівня навчальних досягнень студентів за основними вимогами відповідно до конкретних цілей та індивідуальних особливостей розвитку пізнавальних здібностей.

Наукова новизна. Була розглянута та проаналізована ефективність сучасної системи контролю та оцінювання навчальних досягнень студентів, об'єктивність і репрезентативність отриманих результатів в умовах дистанційного навчання.

Практична значимість. Перевірка знань студентів повинна давати об'єктивні відомості не лише про кінцевий результат освітньої діяльності, але й про неї саму: чи відповідає форма дій даному етапу засвоєння. Правильно поставлений контроль навчальної діяльності студентів дозволяє викладачу оцінювати одержані ними знання, уміння, навички, вчасно надати необхідну допомогу й досягти поставлених цілей навчання.

Ключові слова: *заклад вищої освіти, моніторинг, контроль навчальних досягнень, оцінювання, рейтингова оцінка*

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