

# MONITORING THE QUALITY OF STUDENTS' TRAINING AS A TOOL FOR MANAGING THE EDUCATIONAL PROCESS AT HIGHER SCHOOL

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**Acknowledgments:** The research has been performed within the internal grant of Mordovian State Pedagogical Institute named after M.E. Evseviev for the event "Scientific, learning and methodological support of educational process at higher educational institutions" (theme "Designing and developing the pool of assessment means for interim assessment of students of the Psychology training focus area").

**Abstract:** The relevance of the problem under study is due to the fact that more and more attention is paid to the quality of modern education. The objective of the paper consists in describing the approaches available in science as for organization and performance of testing and assessing the training level of the educational subjects. The leading methods of work are analytical review of scientific and methodological literature detailing questions on organization of the training quality assessment process; analysis and summing up best practices of using the testing and assessment materials and pools of assessment means; systemizing and summing up facts and concepts. The materials of the paper can be used in educational process of higher educational institutions for improving the students' knowledge quality assessment system.

**Keywords:** monitoring, assessment means, quality of training, students, educational process.

## 1 Introduction

The upgrade of Russia's education implies solving an entire range of problems, among which a special status is given to assessing learners' knowledge and achievements, checking the results of training in accordance with the requirements of the Federal State Educational Standards (FSES), as well as to enhanced attention to questions of the quality of education. Introduction of new educational standards and orientation of the higher school to the multi-stage system of students' training highlights the fact that approaches to training quality assessment have to be reconsidered.

In the recent decades, the problem of assessing learners' knowledge and achievements has been an object of close attention. The idea of using monitoring actions, its importance for educational process, description of knowledge assessment procedure using the case of general and secondary education get increasing coverage in the contemporary research works.

In particular, the importance of monitoring actions is noted by I. M. Aganov (2014), K. K. Toregheldieva (2014), T.A. Bezusova (2018), R. A. Valeeva (2014) et al. Attempts have been made to describe methods and algorithms of monitoring in the sphere of education (Toregheldieva, 2014; Erik, 2005; Sallis, 2002; Seymour, 1992; Srikanthan & Dalrymple, 2002; Starichenko, 2013; Van Kemenade et al., 2008; Vinokurova et al., 2016), to analyze the international experience of using the results of national monitoring surveys (Valdman, 2015; The ECTS Grading Scale, 2015; International Grade Equivalencies), to automate monitoring (Kataev et al., 2017; Weiss & Kingsbury, 1984; Zhao, 2002), to monitor individual parameters (personal and mental universal learning actions – A. N. Yashkova (2013); the quality of speech skills and abilities – D. K. Bartosh, N. S. Trukhanovskaya (2016)).

In spite of researchers' close interest in the problem of efficient organization of assessing and testing knowledge, abilities and skills of the subjects of educational environment, it is the question of monitoring students' knowledge and achievements as a tool for managing the educational process at higher school that remains the most debatable one, as before.

## 2 Literature Review

The modern ideas of and approaches to the assessment of educational results, scientific facts, and general questions associated with the description of monitoring as a way for managing the quality of training are presented in the works of I. M. Aganov (2014), V. Zaytsev (2002), V. G. Kazanovich, N. A. Selezneva, A. I. Subetto (2001), A. N. Mayorov (2005), E. I. Pryn (2017), K. K. Toregheldieva (2014) et al.

A large number of works deal with assessing the quality of education as related to students' satisfaction level (Athiyaman, 1997; Choon, 2010; Elliott & Shin, 2002; Ham & Hayduk, 2003; Suhre et al., 2007).

The materials of G. A. Vinokurova (2015), I. B. Buyanova, D. V. Zhuina (2012), S. N. Gorshenina, I. A. Neyasova (2018), E. A. Matrosova (2018), N. Sh. Nikitina (2003), M. V. Alaeva (2017) and others describe particular educational results assessment tools.

The analysis of scientific and methodological literature shows that the notion "monitoring" is extensively considered as:

- the process of tracking the condition of an object using the continuous or periodically repeated collection of data that are a total of specific key indices (Zeer, 2013);
- the system of collecting, processing, storing and sharing the information about a system and individual elements thereof which is oriented to information support for managing this system, which allows judging about its condition at any point of time, and which enables one to forecast its development (Mayorov, 2005).

According to the authors' understanding, *monitoring* is a systemic integral process that allows tracking the condition of any characteristics for subsequently including the findings into the process of management and change.

Monitoring has a number of distinctive features. First of all, it is an integral system of actions. Secondly, unlike other close or similar pedagogical and psychological notions, monitoring is characterized by:

1. continuity (the data are collected continuously);
2. diagnosticity (there are criteria for assessing the quality of results);
3. the informative value (tracking criteria include the most problem-laden indices that allow concluding about distortions in the processes being monitored);
4. feedback (for making corrections to the process being tracked);
5. scientific integrity (justified models are used and parameters are tracked).

Monitoring is multi-functional. It is first of all targeted at:

- identifying and assessing the level of knowledge, abilities and skills;
- boosting the learning material acquisition process.

In the educational environment of higher educational institutions, objects of monitoring can be educational conditions, performance, academic and professional activity of learners, development of students' personalities, professional activity of teachers, etc. These are studied using various assessment means.

By assessment means, the total of materials, measuring tools, forms, and procedures used for assessing the formation level of educational results is understood.

Testing and assessment materials are a type of assessment means; they are specially designed ways for testing the extent of formation of learners' competencies expressed in quantitative

and qualitative indices that allow demonstrating the extent of learners' knowledge, abilities and proficiencies.

Among the tasks of testing and assessment materials, the following are singled out: the possibility of assessing educational achievements, identification of gaps in knowledge, higher transparency and objectivity of testing, "substantiation" of achieving the declared results.

Testing and assessment materials have to conform the requirements of:

- validity (being able to obtain a result in line with the objective);
- reliability (being able to obtain similar results in similar cases);
- consistency (selecting ordered content-related elements united by the certain hierarchy and shared structure of educational results);
- significance (containing significant elements reflecting the planned results);
- objectivity (excluding subjective errors in the assessment; standardized procedure).

Various assignments can act as testing means. For example, these are tests, modeling, cases, portfolios in subjects, reports on practice training, etc. They are used within the continuous, interim or independent monitoring.

Continuous assessment is an important means for improving the students' knowledge level in subjects. It has to cover all students (including ones absent from classes for a valid reason). The main purpose of continuous assessment is to identify the students' knowledge level, to adjust forms and methods of their independent work. During continuous assessment, students' abilities of systemizing the knowledge available and using it in practical situations are also formed. For this assessment, the check of lecture notes, recitation at classes, review works, discussions, and defenses of problem-focused projects are used.

Interim assessment has the following types: exams, credits, assessment of performance in the period between exam sessions, review works provided for by the curriculum and working program, reports on the results of practical works, etc. The preparation for interim assessment is performed within students' independent work, and the defense in person is compulsory.

Independent monitoring of learners' knowledge is conducted for the purpose of assessing the relevant learners' knowledge and the formation extent of competencies in them. Its performance implies participation of the teachers who do not hold classes on the particular subject for the group of students being tested.

### 3 Research Methodological Framework

The research work was conducted on the base of Mordovian State Pedagogical Institute named after M. E. Evseev during the period from the 2016-17 academic year to the 2018-19 academic year. The total of 145 students of the faculty of psychology and defectology (training focus area – Psychology) took part in the research.

The objective of the research is to analyze the experience of the use of testing and assessment materials on the base of the faculty of psychology and defectology at the Mordovian State Pedagogical Institute named after M. E. Evseev.

Its tasks were as follows:

1. To analyze monitoring actions held by the department of special and applied psychology over the recent three academic years;
2. To present the results of monitoring actions performed;
3. To outline a number of problems and promising lines in this area needing further consideration.

The following methods were used in the research process: analyzing and summing up best practices; systemizing and summing up the data available; monitoring tests.

### 4 Results and Discussion

The analysis of best practices has shown that during various forms of assessment (continuous, interim, and independent ones) teachers of the department of special and applied psychology use the following testing and assessment materials the most frequently:

1. *Tests* for checking knowledge, abilities, skills, and the formation level of competencies in various subjects. The following kinds of tasks are used in developing subject-specific and other tests:
  - the comparison ones ("What is the similarity of ...?", "What are the differences of ...?", "The attributes distinguishing ... from ...");
  - ones in establishing cause-and-effect relations ("What change will occur in ...?", "What was the cause of ...?", "What relation is there between ...?", "What does ... depend on?");
  - ones in identifying the objective of a process ("What objective is pursued by ...?", "What is the purpose of ...?", "For what is ... performed?");
  - ones in identifying characteristic features, signs or qualities ("Specify the particularities of ...", "Give signs that are characteristic for ...");
  - ones in classifying objects according to a given attribute ("Specify ..., belonging to ...", "Into what groups is ... subdivided?", "What is referred to ...?");
  - ones in identifying the meaning of a phenomenon / process ("What is the influence of ...?");
  - the substantiation ones ("How can one explain ...?", "The higher ... while ... is reduced is explained by ...");
  - the summarizing ones ("What conclusion can be made...?", "The essence of ... consists in ...").
2. *Review work* is a form of checking and assessing the acquired knowledge, obtaining the information about the nature of cognitive activity, the level of independence and initiative of learners, about the efficiency of methods, forms, and ways of learning activity. There are review works of continuous and final assessment; the written, graphic, and practical ones; the ones targeted at all students or individual ones.
3. *Case method* (the method of particular situations) is one of the methods for checking knowledge and abilities. Students are given descriptions of real educational, psychological, social, and other situations. They have to explore the situation, look into the essence of the problem, suggest possible solutions, and choose the best one out of them. The cases are based on real-life material or are approximated to real situations.
4. *Learning and professional problems* allow assessing the formation level of competencies. Solving the problems, students give general evaluation of situations, select ways of acting, assess the effects, etc. Wording of problems points to the objective and serves as a criterion that allows one to judge about approaching the objective.
5. *Panel discussion* is an open discussion of a set problem among the participating students. This is an exchange of opinions on the given topic, as well as getting answers from an expert teacher to the questions of interest on the topic being discussed.
6. *Development and defense of a study project*. A study project is a set of exploration, research, graphic and other works performed by students independently with the objective of solving a significant problem practically or theoretically. The said assignment allows assessing both academic knowledge and practical abilities.
7. *Portfolio* is a way of recording, accumulating and assessing students' individual achievements; it is also a report on the process of learning that allows seeing the picture of particular educational results, ensuring that students'

individual progress is tracked, and demonstrating their capacity for applying the gained knowledge and abilities in practice.

8. *Modeling and analyzing the situations* is a practice-oriented task that allows assessing abilities, skills, and formed competencies of students. Modeling is focused on a situation or a fragment of reality.

The listed variants of testing and assessment materials are used as independent assessment means in intramural and extramural work. They perform the controlling function and allow assessing the primary "preparation" level of students, as well as managing the educational process.

Let the results of monitoring actions performed by the department of social and applied psychology over the recent three academic years, from 2016 to 2019, be cited (Table 1). In the said period, the department was busy carrying out the independent monitoring of the quality of students' knowledge. The teachers prepared independent monitoring schedules and testing and assessment materials in subjects for each learning term. As assessment means, tests, review works, cases, problems, portfolio, development and defense of study projects were used. The assignments suggest for independent assessment of students' knowledge are integral and diverse as for their types and content. All assessment means undergo expert appraisal first to find out their relevance for the study subjects, representation of its completeness and practice-oriented character; they are also approved at the meeting of the department and are recommended for using for independent assessment of learners' knowledge in particular subjects. On average, during each academic year, they performed 15-35 monitoring actions of various levels. According to the results of monitoring, the findings were analyzed, analytical reports and systems of correction measures were prepared.

Table 1 shows the results of monitoring actions carried out by the teachers of the department of special and applied psychology with students of different years of study in the Psychology training focus area.

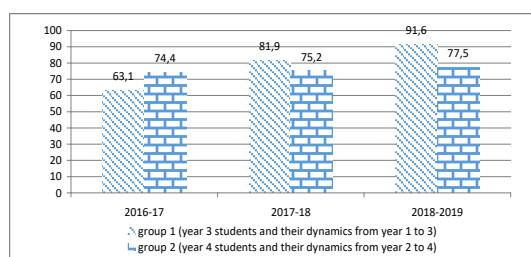
Table 1 Results of monitoring actions for the period from 2016 to 2019 (authors)

Year of study	Academic year					
	Absolute performance			Qualitative performance		
	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19
year 1	88,3 %	84,3 %	94,6 %	63,1 %	62,7 %	86,7 %
year 2	92,4 %	98 %	95,9 %	74,4 %	81,9 %	72 %
year 3	93 %	95,2 %	98,1 %	83,9 %	75,2 %	91,6 %
year 4	94,7 %	95 %	95,2 %	80 %	88,7 %	77,5 %

Source: authors

The data obtained demonstrate the change in figures of absolute and qualitative academic performance of the students for the period of study. The systemic control on the part of teachers allows promptly tracking the students' level of readiness and making adjustments. For more clarity, let the findings be shown as chart 1.

Figure 1 Dynamics of qualitative performance in a number of groups in 2016-19 (authors)



Source: authors

Figure 1 shows the students' qualitative performance dynamics – the increment of indices during study is registered. Monitoring

allows managing the process of mastering the material, stimulating the learners' preparation and tracking their results. It is rightly a tool for managing the educational process.

## 5 Conclusion

The suggested and described testing and assessment materials allow assessing the dynamics of learners' individual progress, their level of mastering the learning material, and with the results obtained, improving the system of training students for practical activity, etc. They can be used at various stages of the educational process (the teaching one, the testing one), and they can act as assessment means both in continuous, interim, and independent monitoring.

The analysis of the results of monitoring shows that the use of various testing and assessment means for assessing learners' competencies, as well as the introduction of a system of monitoring actions into the educational process allow not only managing the process of learning, but also improving students' performance. Alongside this, the authors do not rule out the fact that development or selection of high-quality testing and assessment materials remains an important aspect, as before; the materials have to be focused on assessing competencies while considering their parameters. When organizing monitoring actions, alternation of the assessment means applied is of no less importance.

Bearing in mind the results outlined in the paper, a number of problems and promising lines demanding further consideration can be identified:

- testing and assessment materials, assessment means for measuring learners' knowledge and competencies have to be available in more variants;
- some ideas stated in the paper and associated with the practical use of testing and assessment materials, pool of assessment means have to be extended and developed further.

The materials of the paper can be of use for teachers of educational organizations. The research results can be used for information purposes, in planning and organizing the work in learners' knowledge assessment.

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#### Primary Paper Section: A

#### Secondary Paper Section: AD, AG, AL