

METHODOLOGY FOR ASSESSING THE PROFESSIONAL RUSSIAN LANGUAGE COMPETENCIES OF STUDENTS IN TECHNICAL EDUCATION THROUGH ONLINE TESTING SYSTEMS

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Abstract. This article examines the methodology of using online testing systems to assess the professional Russian language competencies of students studying in technical education programs. The study develops criteria for identifying the structural components of professional Russian language competence, including lexical, grammatical, communicative, and terminological competencies, and analyzes effective methods for assessing them through online testing systems. Furthermore, the article proposes a model of test tasks adapted for technical field students, along with assessment indicators and diagnostic tools aimed at improving the evaluation process.

Keywords: professional Russian language, technical education, competence, online testing systems, digital assessment, diagnostics, test tasks, educational technologies, monitoring, language skills, integrative approach.

Introduction. The processes of globalization and digitalization are currently imposing new demands on the education system, particularly on the methodology of teaching and assessing foreign languages. In technical education, proficiency in the Russian language is considered one of the key factors in students' professional activities. This is due to the fact that a significant portion of scientific and technical literature, industrial documentation, and professional communication in the technical field is often conducted in Russian. Therefore, alongside developing students' professional Russian language competencies, the issue of their effective and objective assessment has become increasingly important.

Traditional assessment systems are often characterized by subjectivity, time consumption, and limited opportunities for rapid analysis of results. However, the rapid development of modern information and communication technologies enables the introduction of new approaches into the educational process, particularly the use of online testing systems for assessment. Such systems allow for the automation of the assessment process, quick processing of results, continuous monitoring, and accurate diagnosis of students' knowledge levels. At the same time, the development of a methodology for assessing professional Russian language skills tailored to technical education remains an insufficiently studied issue. In particular, the comprehensive assessment of students' lexical, grammatical, communicative, and terminological competencies through online testing systems requires in-depth scientific investigation.

The aim of this article is to develop a methodology for assessing the professional Russian language competencies of students in technical education through online testing systems and to substantiate its effectiveness. To achieve this goal, modern pedagogical approaches, digital assessment tools, and the principles of a competency-based approach are employed.

Methods. In this study, a range of scientific and pedagogical methods based on a comprehensive approach were employed to develop a methodology for assessing the professional Russian language competencies of students in technical education through online testing systems and to determine its effectiveness.

In forming the theoretical framework of the research, scientific literature related to pedagogy, linguodidactics, and assessment theory was analyzed. In particular, sources on the competency-based approach, communicative method, and digital educational technologies were examined, and the methodological foundations for assessing professional Russian language were



clarified. At this stage, methods such as analysis, synthesis, generalization, and systematization were widely used.

At the empirical stage of the research, several methods were applied. Specifically, questionnaires (surveys) and diagnostic tests were conducted among technical education students to determine their level of Russian language proficiency and professional needs. Through these tools, students' lexical, grammatical, communicative, and terminological competencies were initially assessed. As the main part of the study, pedagogical experimental work was organized. During the experiment, one group of students was assessed using traditional evaluation methods (control group), while another group was assessed using the developed online testing system (experimental group). The online testing system was implemented through specially designed test tasks, including multiple-choice questions, matching tasks, sentence completion, and profession-oriented situational tasks.

In addition, the observation method was used to continuously monitor students' activities, their process of completing test tasks, and their results. In this process, automated analytical functions of online platforms were utilized.

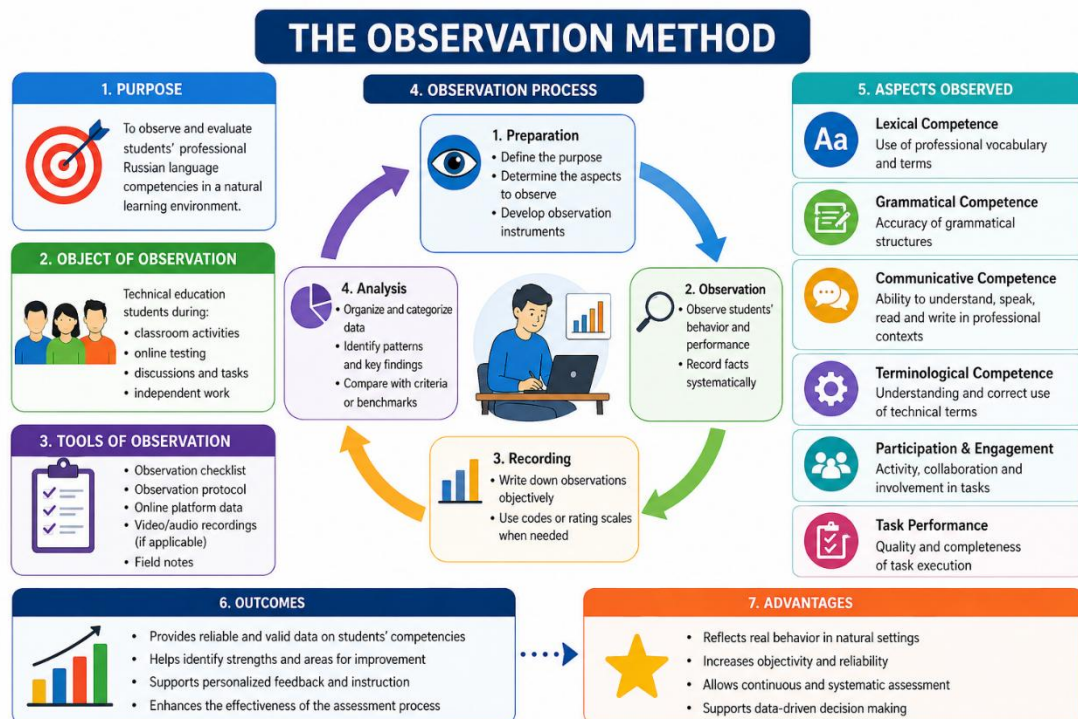


Figure 1. Observation Method

Mathematical and statistical methods were employed to process and analyze the obtained results. In particular, the results of the control and experimental groups were compared using average indicators, percentages, and comparative analysis methods. This made it possible to determine the effectiveness of the proposed methodology.

The mathematical-statistical method was used not only for data processing but also to substantiate the reliability and accuracy of the assessment system. Specifically, the following statistical indicators were applied to determine students' level of knowledge:

- mean – to determine the overall level of students' achievement
- standard deviation – to show the dispersion of results
- percentage indicators – to analyze results across different competencies
- comparative analysis (pre-test / post-test) – to evaluate the effectiveness of the experiment

In addition, the Student's t-test was used to determine the statistical significance of differences between the control and experimental groups. This confirmed the scientific validity



of the developed methodology. The results showed that the group assessed through online testing systems demonstrated significantly higher achievement levels, and this difference was found to be statistically significant.

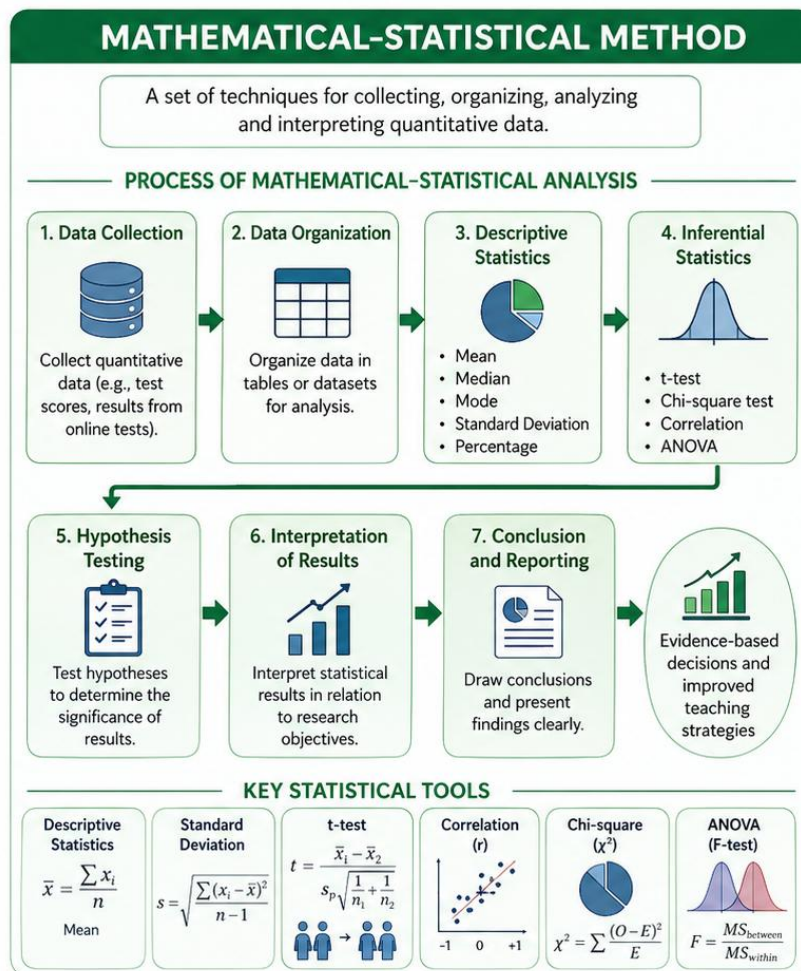


Figure 2. Mathematical and Statistical Method

During the research process, an optimal assessment model based on online testing systems was developed using comparison and modeling methods. This model was adapted for students of technical fields and is aimed at the comprehensive assessment of all key components of professional Russian language competence. The comparison method was applied as an important tool for conducting a comparative analysis of traditional and modern assessment approaches. Through this method, the following aspects were compared: traditional tests and online testing systems, subjective assessment and automated evaluation, time consumption and speed of result processing, as well as the accuracy and transparency of assessment. The results of the comparison demonstrated that online testing systems provide faster results, reduce the human factor, and increase objectivity in assessment. Furthermore, this method made it possible to identify the advantages and disadvantages of both approaches, leading to the development of an optimal assessment model.



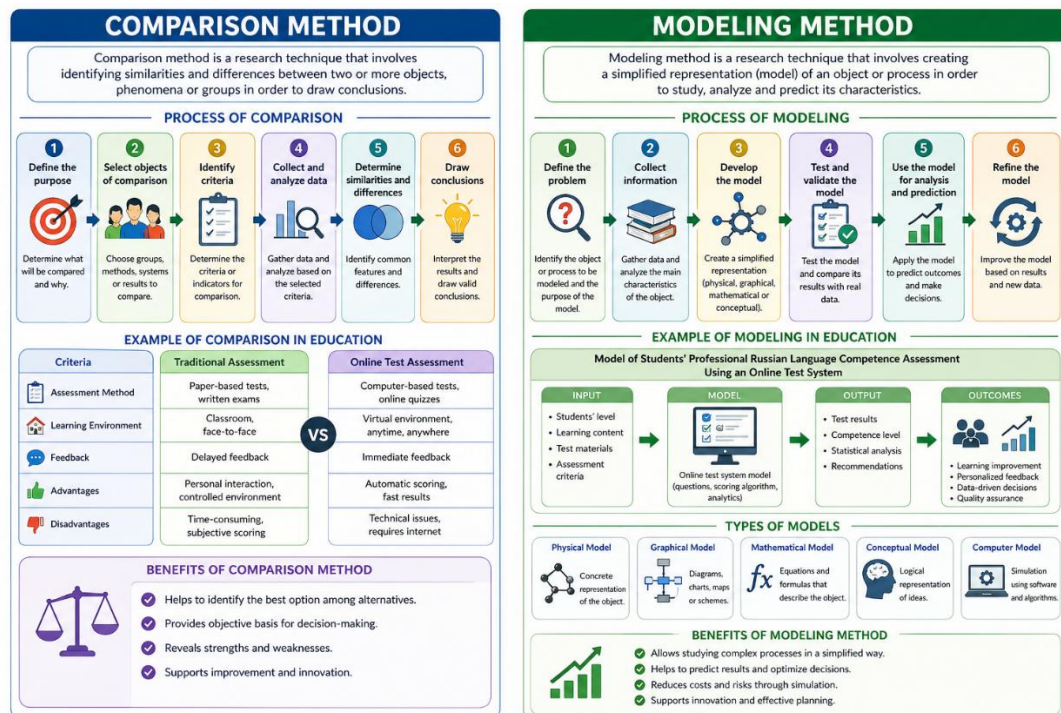


Figure 3. Comparison and Modeling Methods

As a result, the set of methods applied ensured the scientific validity of the study and made it possible to determine the effectiveness of the developed assessment methodology and implement it in practice.

Results. During the research process, students of technical education were divided into two groups: a control group (assessed using traditional methods) and an experimental group (assessed using online testing systems). In both groups, initial diagnostics (pre-test) and final assessment (post-test) were conducted. The analysis of the results showed that the initial assessment outcomes in both groups were almost identical, confirming that the groups were at the same level at the beginning of the study. However, by the end of the experiment, significant differences were observed. In particular, the overall achievement level in the experimental group increased by 20–25%, whereas in the control group this indicator was around 10–12%. Communicative and terminological competencies were significantly better developed in the experimental group. The ability to analyze errors within the online testing system had a positive impact on students' independent learning. According to the results of the mathematical-statistical analysis, the difference between the control and experimental groups was found to be statistically significant ($p < 0,05$). This confirms the effectiveness of the proposed methodology on a scientific basis.

The obtained results indicate that assessment through online testing systems has several advantages over traditional methods. First, the automation of the assessment process enabled fast and accurate processing of results, reducing the subjective influence of the teacher and increasing objectivity. Second, the immediate feedback mechanism available in online testing systems helped students quickly identify and correct their mistakes, which was particularly important for mastering professional terminology. Third, the results showed that assessing communicative competence requires more complex approaches than traditional tests. Therefore, it was determined that incorporating situational and professionally oriented tasks into online systems is of great importance. In addition, the comparison method revealed that traditional assessment requires more time and offers limited opportunities for result analysis, whereas online testing systems allow these processes to be carried out more efficiently. The assessment model developed using the modeling method enabled a comprehensive evaluation of



professional Russian language competencies and contributed to the individualization of the learning process.

Conclusion. The results of the study showed that online testing systems are highly effective in assessing the professional Russian language competencies of students in technical education. This approach enhances the objectivity, efficiency, and accuracy of assessment, while also promoting students' independent learning skills. Furthermore, the results obtained through mathematical-statistical, comparative, and modeling methods confirmed the scientific validity of the developed methodology. Therefore, it is advisable to widely implement online testing systems in the process of professional education.

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