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**DIAGNOSTICS OF METHODOLOGICAL COMPETENCIES OF A
TEACHER**

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Abstract

Within the subject field of the article, the regional experience of developing and testing tools for diagnosing the methodological competencies of teachers, including the experience of organizing work with teachers of basic schools of the Pedagogical University to improve the quality of educational results, is provided. Considering the diagnostics of methodological competencies of a teacher as a condition for improving the quality of education, the article focuses on the characteristics of diagnostics tools for identifying the level of methodological competencies of a teacher in relation to the taught subject and the results of its testing, determining professional deficits and planning possible corrective actions to overcome them. The presented materials describe the methodological approaches and methods used in the development of the diagnostic work model, show the results of testing diagnostics tools in terms of the methodological competencies of the teacher, reflect the analytical work based on the results of testing and applying the results to management decisions. The materials of the article include the intermediate results of a longitudinal study, which was initiated as part of the implementation of the state order for 2021 “Development of a regional model for managing the quality of teacher education based on identifying professional deficits and building individual educational trajectories for teachers (including students – future teachers)”. The conclusions in the article are addressed to promising solutions for the development of methodological competencies of teachers in the system of continuing professional education of teachers and interaction between the school and the pedagogical university.

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1. Introduction

The new requirements imposed on the results of general education are a challenge for both pedagogical education and the system of continuing education of pedagogical personnel. It is no coincidence that the national system of teacher growth (NSTG), formed in Russia on behalf of President Vladimir Putin and aimed, in particular, at creating conditions for personal development and improving the professional skills of a teacher, requires close interaction and integration of higher pedagogical education and continuing education of teachers. One of the most important stages in the development of the teacher growth system is the procedure for assessing the subject and methodological competencies of teachers. Studies of the professional competencies of teachers are designed to identify the problems and methodological difficulties of teachers, to help eliminate them. Therefore, the procedure for diagnosing the subject and methodological competencies of a teacher is included in the unified system for assessing the quality of school education in the Russian Federation, along with such procedures as international comparative studies, State Final Certification (SFC), All-Russian Test Work (ARTW), National Studies of Education Quality (NSEQ). Structurally, the professional competence of a teacher, according to the concept of research within the framework of the NSTG development, includes psychological and pedagogical, subject and methodological competencies. A comprehensive analysis of the assessment procedures results, the determination of the correlation between the level of professional competencies of a teacher, including the methodological and educational achievements of students, can effectively solve the problems of providing methodological assistance to the teacher, direct the personal and professional potential of the teacher to ensure the quality of educational results in the taught subject. In addition to the above, in countries that demonstrate high results in international comparative studies of the quality of education, the assessment of the subject and methodological competencies of a teacher is an integral part of the process of ensuring the professional development of teachers and significant positive experience has been gained in developing tools for organizing the procedure for diagnosing and assessing teacher competencies.

2. Problem Statement

The first comprehensive studies of professional competencies of a teacher in Russia, undertaken as part of the development of a unified system for assessing the quality of education in 2015, showed a low level of proficiency of teachers in psychological, pedagogical and subject competencies, and also revealed low results of proficiency in methodological competencies in the field of the taught subject. The conducted research also revealed an insufficient level of skills for objective standardized assessment of learning outcomes, which is one of the most important methodological skills of a teacher in the implementation of control and diagnostics function and ensuring that students achieve the planned subject and meta-subject results. Taken together, it is the methodological competencies of a teacher that are necessary for the successful solution of professional tasks related to the use of educational technologies, the realization of the developing and educational potential of an educational subject, the formation of new ways of acting with subject content and mastering the subject at the level of functional literacy.

In this regard, the problem of providing new approaches to the methodological training of teachers as a condition for improving the quality of education requires an effective solution. It should be noted that

modern research in the field of improving the quality of education, including foreign ones, emphasize the importance of focusing in this process on learning outcomes, personal qualities of teachers and students, continuous improvement (Yang, 2020). Therefore, the use of selective diagnostics of professional deficits in methodological knowledge and skills of a teacher can become the basis for solving the problem.

3. Research Questions

The creation of diagnostic tools to identify the problem of professional deficits in relation to the area of the taught subject in order to personalize the system of corrective actions is the most important task of this study. Analysis of diagnostics results of methodological competencies and identification of professional deficits can help minimize time and economic resources in improving the quality of education. Understanding the causes of methodological difficulties, faced by the teachers, will allow them to direct their efforts to acquire the necessary professional knowledge and skills to solve the main methodological tasks for the implementation of the conceptual foundations of the Federal State Educational Standard of General Education (Zakirova & Shamigulova, 2016): for what to teach? (the ability of the teacher to goal-setting and designing the planned results); what to teach? (ability to carry out structural and functional analysis of the content of training sessions); how to teach? (the ability to choose and apply effective forms, methods, techniques, tools, technologies for the qualitative mastering of an academic subject and achieving the planned results). In the scope of the article, the subject field of the study covers the testing of diagnostics tools to identify the level of methodological competencies of teachers of Social Science and the analysis of directions for further work on the development of methodological competencies of teachers.

Within the framework of the study, diagnostic tasks were developed based on the principles proposed in the course of the project “Development of a system for assessing teacher competencies based on unified federal assessment materials” in 2018 (Altynikova & Muzaev, 2019): 1) focus on the labour functions and labor actions of the teacher, formulated in the Professional Standard “Teacher” (Professional standard “Teacher (pedagogical activity in the field of preschool, primary general, basic general, secondary general education) (educator, teacher)” (Order of the Ministry of Labor and Social Protection of the Russian Federation dated 18.10.2013 No. 544n; with the Amendments and Additions of August 5, 2016); 2) the universality of the structure of diagnostic work for different academic subjects; 3) the universality of the types of tasks in relation to the specified labour actions.

It should be noted that with the existence of various approaches to the selection of task types at the present stage, the authors, relying on the international practice of studying the competencies of teachers, recognize the validity of diagnostic tasks that involve an automated way to check the results. In this regard, the features of the types of tasks in the diagnostic work presented for testing are also due to the choice of an automated method for checking the results.

4. Purpose of the Study

Considering the diagnostics of methodological competencies of a teacher as a condition for improving the quality of educational results, we have identified the purpose of the study, which is to test

diagnostics tools to identify the level of methodological competencies of a teacher in relation to the taught subject area, to determine professional deficits and possible corrective actions to overcome them.

The achievement of the research goal presupposed a consistent solution of the tasks to clarify methodological approaches for developing a diagnostics work model, testing diagnostics tools, analytical work based on the results of testing and applying the results obtained for management decisions aimed at improving the pedagogical skills of a teacher and improving the quality of education.

5. Research Methods

The diagnostics involves 109 teachers of Social Science from general educational organizations of the Republic of Bashkortostan, of which 53 (49 %) were teachers from urban schools, including 6 teachers from basic schools of a pedagogical university and 56 (51 %) teachers from rural schools.

For testing, 4 variants of diagnostics work were prepared on each subject. The set of materials contains a codifier, including content elements being checked and requirements for the level of subject and methodological competencies of teachers; a specification that describes the structure of diagnostics work and types of tasks, criteria for their assessment; a demonstration version of the work.

The diagnostics work consists of 18 tasks of two types, including 10 tasks (from 1 to 10) to assess the subject competencies of the teacher (part 1 of the diagnostics work) and 8 tasks (from 11 to 18) to assess the methodological competencies of the teacher (part 2 of the diagnostics work). The methodological part of the diagnostics work contains 8 tasks (methodological tasks – cases) with a choice of answers.

When developing tasks, the framework requirements formulated in the Professional Standard “Teacher”, which determine the content of the necessary knowledge and skills to perform the required labour actions within a given generalized labour function, are supplemented by the regulatory requirements of the Federal State Educational Standard of General Education, as well as the Federal State Educational Standard of Higher Education in the direction of training “Pedagogical Education” (bachelor’s and master’s degree).

The conceptual basis for structuring and selecting the content for the tasks of the methodological part of the diagnostics work is the theoretical provisions on the didactic cycle of the educational process implemented in the joint activity of the teacher and the student to achieve educational results taking into account the cognitive abilities of the student (Osmolovskaya & Ivanova, 2011). Methodological tasks-cases are differentiated into three blocks, in accordance with the main components of the didactic cycle: “Goal setting. Designing results”, “Organization of training”, “Verification and evaluation of educational achievements” (the ability to apply methods of objective standardized assessment of learning outcomes).

Tasks of diagnostic work assume distribution by difficulty levels – basic (11–13 tasks), increased (14–17 tasks) and high (18th task). In this regard, the share of each task in the total number of points is differentiated: 2 points for tasks of a basic level, 3 points for tasks of an increased level and 4 points for a task of a high level of difficulty, in total, the maximum number of points for methodical tasks is 22.

Each task of the methodological part is correlated with a professional deficit, which is identified and fixed depending on the number of points received (Table 1).

Table 1. Correlation of methodical tasks and professional deficits

Task No.	The content element being checked	Professional deficit
11–12	Designing educational results in accordance with the requirements of the Federal State Educational Standard	Design of subject and meta-subject results in accordance with the requirements of the Federal State Educational Standard and the approximate educational program for the subject. Planning of results in the zone of immediate and actual development of students.
13–14	Organization of the learning process	Knowledge of forms, methods, techniques, means, and technologies for achieving the planned results
15	Organization of the learning process: the use of ICT	Knowledge of electronic educational resources, services and learning tools, the possibilities of their use in the educational process
16	Organization of the learning process for persons with disabilities	Understanding the features of interaction with a child with disabilities according to their nosology
17–18	Verification and evaluation of educational achievements	Implementation of an objective assessment of educational results

6. Findings

Analysis of the approbation results of the diagnostics work showed that, in general, the respondents, regardless of the chosen option, demonstrated high results in mastering subject competencies. The share of social studies teachers who scored the maximum number of points for the tasks of part 1 ranges from 50 % (task 4) to 95 % (task 1). Whereas the share of teachers who scored the maximum number of points for the tasks of the methodological part ranges from 3 % (tasks 14 and 16) to 50 % (task 17) (Figure 1). This confirms our assumption about significant professional deficits in the field of methodological knowledge and skills of teachers, including teachers of Social Science at the basic schools of the university participating in the approbation.

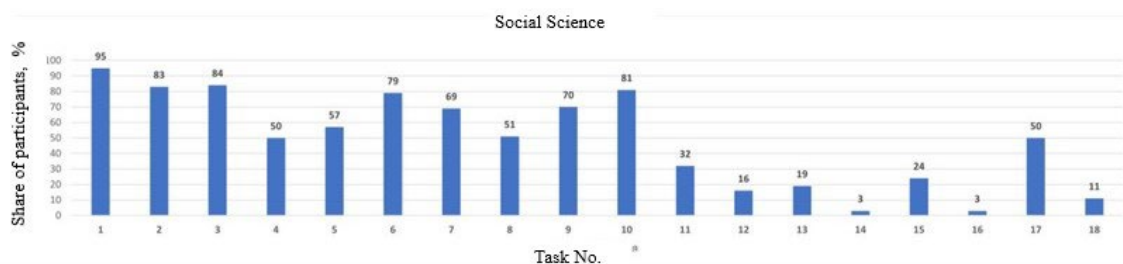


Figure 1. Percentage of Social Science teachers who scored the maximum number of points for all tasks of diagnostics work

Data on the results of completing the tasks of part 2 by rural and urban teachers, as well as teachers of basic schools (Figure 02), indicate that less than half of the participants correctly completed the methodological cases (tasks 11–18).

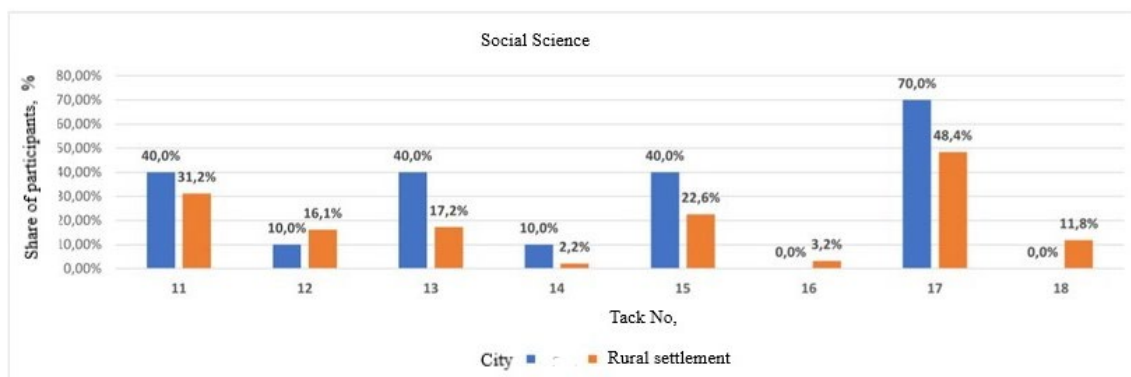


Figure 2. Percentage of Social Science teachers who scored the maximum number of points for methodological tasks

The analysis of the results of the general sample of teachers as a whole allowed us to correlate quantitative and qualitative indicators of methodological knowledge and skills, in accordance with the specification of the tasks of the methodological part (11-18) and to identify some professional deficits in this area:

Tasks 11 and 12 assumed the ability to set learning goals in the form of planned results in accordance with the requirements of the Federal State Educational Standard and an approximate educational program for the subject. In addition to the above, in task 11 it was necessary to select the planned results in relation to the study of a specific section of the course and the level of education (grades 6-9 or 10-11). The task was completed with the maximum score by 32 % of teachers. In task 12, it is necessary to differentiate the planned results by the levels “Graduate will learn” and “Graduate will have the opportunity to learn”. Only 16 % successfully completed this task.

Tasks 13 and 14 are aimed at testing the ability to select and apply forms, methods, techniques, tools, and technologies to achieve the planned results. Moreover, in task 13, depending on the option, it was necessary to choose techniques or technologies aimed at organizing the development of theoretical knowledge by students. The share of teachers who completed the task for the maximum score amounts to 19 %. In task 14, it is necessary to identify the relationship between the techniques used (training tasks) and the skills being formed, to establish a correspondence between a specific skill and the proposed task in the textbook. Only 3 % of teachers successfully completed this task.

Task 15 is aimed at identifying the knowledge of electronic educational resources, learning tools, their functionality, and the possibility of using them in the educational process. The task was successfully completed by 24 % of teachers.

Task 16 is aimed at understanding the features of interaction with a child with disabilities according to their nosology, as well as the use of basic defectological knowledge in the organization of training (successful completion was demonstrated only by 3 % of respondents).

Tasks 17 and 18 are aimed at carrying out an objective assessment of the results of the work based on established criteria. Each task contains a description of the task for the student, evaluation criteria for the task, and the response of the student for evaluation. Task 17 was successfully completed by 50 % of respondents, while task 18 was completed by only 11 % of teachers for the maximum score. The complication of task 18 is associated with the need to check and evaluate the mini-essay of the student according

to the criteria. The task is of complex nature and requires the teacher to possess both subject and methodological knowledge and skills (Yangirova & Shamigulova, 2021), including possession of techniques for objective standardized assessment of learning outcomes. It should be noted that the formation of this pedagogical skill requires special attention, since the process of evaluating tasks with a detailed answer, including the judgments of students in the humanities, is associated with risks of subjectivity and psychological characteristics of the teacher to the perception of the response provided by the student, its interpretation (Loibl et al., 2020).

The results indicate that, in general, tasks 12, 14 and 18 caused the greatest difficulty for both urban and rural teachers. Possible reasons for the difficulties are related to the fact that all the cases assume that the teacher is focused on the methodology of the activity approach, which underlies the implementation of the requirements stated by the Federal State Educational Standard of General Education. Therefore, if the traditional approach still prevails in the practice of teaching the subject, it causes difficulties for the teacher in solving these methodological tasks.

Special attention should be paid to the low results demonstrated when performing task 16. The need of modern teachers for methodological assistance in teaching children with disabilities is also confirmed by other studies conducted in the last three years among Russian teachers (Utemov, 2021).

Taking into account the significant differences in the results of teachers performing tasks of the first (subject) and second (methodological) parts of diagnostics work, 32 % of all respondents demonstrated a basic proficiency level in professional competencies, 11, 65 % – an increased level and 2, 9 % – a high level. In addition to the above, the results obtained correlate with the findings of a study conducted in the region on the assessment of subject and methodological competencies of teachers in various academic subjects (Altynikova et al., 2022), which makes it possible to extrapolate the findings to the situation of methodological training of teachers to the conditions for implementing the conceptual provisions of the Federal State Educational Standards of General Education.

In this regard, the creation of personalized scientific and methodological support aimed at developing pedagogical skills and designing targeted activities is seen as a condition for overcoming professional deficits and developing the methodological competence of teachers. It should be noted that the point of issue is choosing the optimal forms of work with teachers to overcome professional deficits, filling events not with excessive general information, but with selected information, using specific techniques and intensive technologies (trainings, information mazes, mental maps, projects) aimed at replenishing the necessary methodological knowledge and skills. The experience of such work and the analysis of scientific research in the field of advanced training of teachers, including foreign ones (Ilie et al., 2020) shows that the effect of corrective measures does not depend on the number of hours, on the contrary, an intensive work mode, a combination of various forms of practical tasks can ensure the achievement of desired result.

7. Conclusion

The presented results of the diagnostics materials approbation provide positive conclusions about the need to use diagnostics procedures to improve the system of continuing education of teachers, in particular the system of methodological training and improvement of pedagogical skills of teachers. Diag-

nostics of professional competencies of a teacher allows monitoring his professional growth and respond flexibly to the need for eliminating professional deficits, create conditions for motivating personal growth in professional activities. It is the development of valid diagnostics materials, carrying out diagnostics assessments and analytical work that should precede the development of programs for scientific and methodological support of activities of teachers and measures to provide methodological assistance. Performing diagnostics tasks and analyzing the results obtained are an effective way for self-reflection of a teacher and an incentive to self-education, which, definitely, will contribute to the development of motivation for professional growth and professional activity.

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